TEXTILE TECHNOLOGY DIGEST

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Abstracts

ORGANIC FIBERS I

Vegetable fibers I 1

Bast fibers. A comparative study of jute, urena and punga fibers. Maurice van Overbeke & Georges Mazingue, Laboratory of the Chamber of Commerce of Roubaix. *Bull. de L'Institut Textile de France* No. 5, 35-7 (Mar. 1948).

Microscopic examination, determination of chemical composition and chemical properties, and a study of the physical and mechanical properties of these 3 fibers show that they can be used interchangeably in the textile industry. However, they are not completely identical. Urena has the higest tenacity, followed by jute and punga in decreasing order. Urena and punga produce coarser yarns. They require oiling in preparation, as does jute; perhaps more than jute. Urena contains more cellulose than jute or punga, and is less lignified. Jute and punga are much alike in these respects. These 3 fibers are about equally resistant to chemical reagents. Like all cellulose fibers, they are sensitive to acids and alkalis. Urena is the most resistant to alkalis. Jute could be replaced to advantage by urena, but punga should be regarded as a second-choice fiber. TTD: 7-48

Bast fibers. Process for decomposing bast fibers. I. G. Farbenindustrie A. G. (Patent application I 55552, T. H. K. report). PB L 28164, July, 1936. 4 pp. *Bibl. Sci. Ind. Reports 5,* 433 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Bast fibers are freed of wood and boiled with a caustic alkali solution, washed, and treated with a 0.5-1% solution of mineral acid, into which chlorine is introduced continuously. The amount of chlorine used must be sufficient to chlorinate the lignin, etc. Later, sulfite is added, and the whole heated to 60-70° C. TTD: 7-48

Fiber structure. Structure of cellulose fibers as revealed by the electron microscope. C. W. Hock. *Anal. Chemistry 20,* No. 1, 91 (Jan. 1948). Abstract of a paper presented before the Electron Microscope Soc. of Am., Philadelphia Dec. 11-13, 1947.

The structure of cellulose fibers was studied by means of metal-shadowed specimens, surfare replica, and stained preparations. These techniques of preparing specimens for electron microscopical examination revealed the fundamentally fibrillate structure of natural cellulose, as well as other details not readily discernible in specimens prepared by ordinary techniques. TTD: 7-48

Ramie. Ramie fiber and its by-products. Willis G. Waldo. *Chemurgic Digest 7,* No. 5, 25-8, 33 (May, 1948). (A condensation of a paper presented before the 1948 Natl. Farm Chemurgic Conference).

The present status of production of ramie fiber and ramie by-products is discussed in some detail. Some work has been done on spinning 20s yarn out of this fiber. Considerable work on protein by-products has been done and the results seem promising. A great deal of effort has been spent in developing methods of decorticating the fiber. References were made to a new method of decortication but the details are omitted.
LCL TTD: 7-48

Bast fiber. Device for feeding bast-fiber stalks into a breaker. Ige Etrich. Ger. P. 724 520, Aug. 28, 1942. 4 pp. (Application E 53742 VII/29a, June 25, 1940). *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. TTD: 7-48

Bast fibers. Device for feeding bast fiber stalks into a fluted roller-type breaker. Lück, Främbs & Freudenberg. Ger. P. 727 776, Nov. 12, 1942. *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. TTD: 7-48

Bast fibers. Device for forming a uniformly thin layer of parallel bast-fiber stalks. Hugo Bindler. Ger. P. 707 858, July 5, 1941. (Application B 189 359 VII/29a, Dec. 1939). *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. TTD: 7-48

Bast fiber. Procedure and device for removing the chaff from previously broken bast fiber stalks. Hermann Haas, Jr. Ger. P. 726 397, Oct. 12, 1942. *Bibl. Sci. Ind. Reports 5,* 460 (May 2, 1947).

Drawing included. TTD: 7-48

Bast fibers. Procedure and device for removing the seeds from bast-fiber stalks, particularly from flax stalks. Leonhardt, Gebr. Bindler. Ger. P. 727 584, Nov. 6, 1942. (Application B 192 674 VII/29a, Dec. 1940). *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. TTD: 7-48

Bast fibers. Procedure for obtaining bast fibers capable of being spun in the form of a ribbon. Ulrich Gminder. Ger. P. 715 505, Dec. 23, 1941. *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. TTD: 7-48

Bast fiber. Procedure for obtaining flaked bast suitable for spinning from green bast-fiber stalks in a continuous process. Rudolf Dittrich. Ger. P. 714 753, Dec. 5, 1941. (Application D 83 887 VII/29a, July, 1939). *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. TTD: 7-48

Bast fiber. Procedure for obtaining in a continuous process a short bast-fiber tow from green bast-fiber stalks. Rudolf Dittrich. Ger. P. 714 752, Dec. 5, 1941. (Application D 83 886 VII/29a, July, 1939). *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. TTD: 7-48

Fibers from reeds. Rubbing arrangement for obtaining fibers capable of being spun from fiber stalks, particularly reed stalks. Georg M. von Hassel. Ger. P. 726 396, Oct. 12, 1942. *Bibl. Sci. Ind. Reports 5,* 460 (May 2, 1947).

Drawing included. TTD: 7-48

Animal fibers I 2

Protein fibers. Free energy, heat and entropy changes accompanying the sorption of water vapor by proteins. S. Davis & A. D. McLaren. *J. Polymer Sci. 3,* No. 1, 16-21 (Feb. 1948).

Integral and differential free energies and integral and differential heats and entropies of sorption have been calculated as functions of the amounts of water sorbed on silk, wool, egg albumin, collagen, and similar proteins. TTD: 7-48

Structure of wool. An investigation of degraded wool. Gloria Seeman & Max Swerdlow. *Anal. Chemistry 20,* No. 1, 91 (Jan. 1948). Abstract of a paper presented before the Electron Microscope Soc., Philadelphia, Dec. 11-13, 1947.

A thermoplastic replica technique was used to make possible the surface study of wool fibers during various periods of degradation, by means of the electron microscope. The replicas showed clearly some of the fine structure of the wool fibers. TTD: 7-48

Artificial fibers I 3

Keratin. Regenerated keratin. Ralph L. Evans. USP 2 434 688, Jan. 20, 1948.

Keratin is reduced with minimum hydrolytic degradation in an aqueous alkaline solution of a simple or substituted alkanthiol. The reduced form is soluble in aqueous alkali, from which it may be regenerated with acids or converted to typical derivatives. Temperatures below 60° C and pH below 13.5 are preferred.
MC TTD: 7-48

Rayons I 3 a

Cellulose acetate. Studies in cellulose acetate. II. Pijush Kanti Choudhury. *J. Indian Chem. Soc. 24,* No. 7, 271-8 (July, 1947).

In the first stage of acetylization during the preparation of cellulose acetates, an acetate soluble only in chloroform is produced which has an acetic acid content of 62.5%, the amount theoretically required for the triacetate. Intermediate products, soluble in both chloroform and acetone, are then formed, and finally the diacetate, having an acetic acid content of 48.8%, is formed. The hydrolysis of tri-acetate to di-acetate occurs in the absence of either acetic acid or water, but a longer time was required. Varying percentages of H_2SO_4 as catalyst were used. TTD: 7-48

Cellulose acetate. Studies in cellulose acetate. III. Pijush Kanti Choudhury. *J. Indian Chem. Soc. 24,* No. 9, 365-70 (Sept. 1947).

Results identical with those reported in Part II of this paper were obtained by using different proportions of cellulose and acetyltating mixtures. TTD: 7-48

Printing. Hydrolysis of cellulose esters. Aceta GmbH. I. G. Farbenindustrie. T. H. K. report. Patent application A 73 023 IVa/8k. PB L 62 969, Apr. 1934, 4 pp. *Bibl. Sci. Ind. Reports 5,* 341-2 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The hydrolysis of substances such as acetate rayon is accelerated during the printing process by adding organic onium bases or salts to this slop liquors or printing pastes with their customary alkaline components. The onium bases have pronounced surface-active cations and contain pentavalent nitrogen, phosphorus, antimony, or arsenic, or tetravalent sulfur. TTD: 7-48

Properties of rayon. Study of the longitudinal mechanical properties of viscose rayon and acetate rayon and of the origin of drawn fibers. I. Elasticity and plasticity. II. Apparatus used to measure the elasticity of rayons. M. le Chenoine Pinte & M. Heuno. (Centre de Research de la Soierie, Lyon). *Bull. de L'Institut Textile de France* No. 4, 143-57 (Dec. 1947).

Elasticity and plasticity are defined and discussed. The conditions necessary for the proper functioning of dynamometers are discussed and the apparatus used in industrial laboratories is described. TTD: 7-48

Properties of rayon. III. Interpretation of measurements made with Richard's Serigraph. M. le Chenoine Pinte & M. Heuno. *Bull. de L'Institut Textile de France* No. 5, 61-71 (Mar. 1948).

A discussion of the load-elongation curves of viscose and acetate rayons and the hysterisis cycle. The behavior of rayon during the drawing process can be studied only by means of a dynamometer in which the tensile force is increased at a constant rate. This apparatus should also register the force-elongation curve; only such a curve shows the limits for reversible elongation. These limiting values are of considerable practical interest because exceeding them causes defects in the drawn filament. The absolute values for reversible elongation are more affected by relative humidity than the values for breaking strength and elongation, especially for viscose rayon. However, relative humidity is not the only factor affecting these limits; the time during which the tensile force acts is also important.
TTD: 7-48

Rayon. Producing rayon from cellulose derivatives. Aceta GmbH. I. G. Farbenindustrie. T. H. K. report. Patent application A 7 305 IVa/8k. PB I 62 968, Jan. 1934. 4 pp. *Bibl. Sci. Ind. Reports 5,* 342 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Newly spun cellulose ester fibers are treated with aqueous preparations containing water-soluble soaps or soap-like ingredients with cationic character. TTD: 7-48

Rayon manufacture. Preparation of basic substituted products. Aceta GmbH. I. G. Farbenindustrie A. G. T. H. K. report. Patent application A 74 461 IVa/12q. PB L 62 974, Nov. 1934. 8 pp. *Bibl. Sci. Ind. Reports 5,* 341 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Compounds with hydroxyl, mercapto, or amino (or imino) groups are treated with such alkylene oxides as are either already contain basic groups or receive basic characteristics by the addition of alkyl esters of organic acids, or by hydrolysis or reduction. The resulting

products are used in the manufacture of rayon. (This document will not photograph well). TTD: 7-48

Rayon manufacture. Shaped products of basic character. Aceta GmbH. I. G. Farbenindustrie, T. H. K. report. Patent application A 76 072 IVc/22b. PB L 62 972, May, 1935. 5 pp. *Bibl. Sci. Ind. Reports 5,* 341 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.* (See PB L 62 974).

Films and fibers are produced from regenerated cellulose and cotton by the method of patent application A 74 461 IVa/12q by using substances which are not basic or not basic enough, and yet contain hydroxyl, mercapto, amino, or imino groups, and after-treating with alkylene oxides, and if necessary, alkylated, hydrolyzed, or reduced.
TTD: 7-48

Treating rayon. Method for producing rayon. Aceta GmbH. I. G. Farbenindustrie. T. H. K. report. Patent application A 74 147 IVc/29b. PB L 62 971, Sept. 1934. 10 pp. *Bibl. Sci. Ind. Reports 5,* 341 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Rayon and other organophilic colloidal products are given an improved affinity for dyes by adding synthetic products of high molecular weight having reactive halogen, oxide groups, sulfuric acid ester groups, or sulfonic ester groups. During or after forming, the structures are treated with amines or their derivatives, or with other substances capable of forming basic groups by addition. Compounds of low molecular weight having a reactive ethylene oxide ring may be added. TTD: 7-48

High frequency drying. Drying rayon filaments by high frequency. Frank H. Griffin (to Am. Viscose Corp.). USP 2 433 842, Jan. 6, 1948.

Continuously traveling, freshly spun viscose rayon filaments are dried by passing them concentrically through a set of 3 electrodes which are preferably U-shaped. The center electrode is connected to the HF source. Uniform heat conditions and constant tension permit free and uniform shrinkage of the filamentary materials during drying and cause the filamentary material to take dyes uniformly.
CAC TTD: 7-48

Rayon packaging. Apparatus for preparing yarn and thread packages for liquid treatment. Henry J. McDermott (to Am. Viscose Corp.). USP 2 436 481, Feb. 24, 1948. (This patent is in part a continuation of USP 2 371 638, Mar. 20, 1945).

In the liquid treatment of freshly spun artificial filaments, an essential protective covering over the yarn package is mechanically applied by means of an appa-

ratus which consists of a sleeve large enough to hold the yarn package and a gripping member, located in the center portion of the sleeve, over which the yarn package is placed. In a position where the center portion, or gripping member, is raised above the top of the sleeve, a tubular fabric is placed on the mechanism. The fabric is loosely gathered at the top of the center portion and draped on the outside of the sleeve member. The yarn package is placed over the center gripping member and on the inside of the sleeve, which is then raised to force the tubular fabric around the outside of the yarn package. As the sleeve is rotated, the gripping members extend outwardly, centering the yarn package and also spreading the tubular fabric to the dimensions of the center core of the yarn package. The top portion of the tubular fabric is then folded over the yarn package and the sleeve lowered and rotated to release the gripping members.

CCJ TTD: 7-48

Rayon solvent. Solvent for rayon and rayon treating solution. Chas. L. Mantell (to United Merchants & Mfrs., Inc.). USP 2 434 621, Jan. 13, 1948.

An aqueous solution which consists essentially of 7-15% alkali metal hydroxide, 4-10% urea, and about 2% zinc oxide is used for dissolving rayon. This solution can be used at room temperature and provides a method of stripping rayon coatings from textile materials.

GNR TTD: 7-48

Making rayon balls. Device for making rayon balls by means of a rotatable thread guide. Carl Hamel. Ger. P. 723 177, Aug. 1, 1942. Supplement to patent 714 104. *Bibl. Sci. Ind. Reports 5,* 460 (May 2, 1947).

Drawing included. TTD: 7-48

Spinning viscose. Device for spinning synthetic threads from viscose. Carl Hamel. Ger. P. 715 504, Dec. 23, 1941. *Bibl. Sci. Ind. Reports 5,* 460 (May 2, 1947).

Drawing included. TTD: 7-48

Protein fibers I 3 b

Protein fibers. Electron microscopy of keratin fibers. J. L. Farrant, E. H. Mercer, A. L. G. Reeds. *Anal. Chemistry 20,* No. 1, 90-1 (Jan. 1948). Abstract of a paper presented at the meeting of the Electron Microscope Soc. of Am., Philadelphia, Dec. 11-13, 1947.

The implication of the evidence provided by electron microscopes together with that obtained from x-ray and chemical studies on keratin fibers are discussed.

TTD: 7-48

Synthetic fibers I 4

Fibers from polymers. Preparation of formed structures from high polymers. Aceta GmbH. (Patent application A 75 016 IVc/29b). I. G. Farbenindustrie, T. H. K. report. PB L 62 980, 15 pp. Jan. 1935. *Bibl. Sci. Ind. Reports 5,* 341 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat).

Organophilic high polymers which possess an enhanced selective tendency to combine with treating agents of basic nature (dyes, etc.) are prepared in the form of fibers, ribbons, sheets, or felts from substances with the following characteristics: they must either carry stable acidic radicals or contain compounds which yield such groups as a result of hydrolysis or oxidation. (This document will photograph poorly). TTD: 7-48

Improved dyeing. Producing synthetic substances such as synthetic fibers. Aceta GmbH. I. G. Farbenindustrie A. G. T. H. K. report. Patent application A 7 447 IVc/29b. PB L 62 973, Nov. 1934, 11 pp. *Bibl. Sci. Ind. Reports 5,* 341 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Synthetic substances of high molecular weight are added to solutions of highly polymeric products, particularly cellulose derivatives, to improve their dyeing characteristics. Added substances must either contain basic groups or be transformable into products with basic nitrogen by reduction, hydrolysis, or alkylation. (This document will not reproduce well). TTD: 7-48

Keratin and nylon. The effect of strongly hydrogen bonding agents on some polar polymers. G. King. *J. Colloid Sci. 2,* No. 6, 551-62 (Dec. 1947).

The effect of the sorptions of water and formic acid on the dielectric and elastic properties of keratin and nylon was studied by determining the dielectric constants, the rigidity modulus, the rigidity temperature effect, the heats of wetting and absorption, and the formic acid adsorption isotherm. The results show that these are closely interlinked and depend on the ease of the rotation of polar groups in the polymer chains. From the rigidity-sorption and heat of sorption results, it was concluded that the bound fraction of the absorbate is associated with the initial reduction in elastic moduli and that all the polar groups in these polymers are not available as low energy sorption sites. TTD: 7-48

New polyamides. Preparation and structure of some new types of polyamides. M. R. Aelion. *Ann. Chim. Series 12,* 3, 5-61 (Jan.-Feb. 1948).

By measuring the water liberated during the reaction, the conductivity of the reaction medium, and the viscosity and osmotic pressure of solutions of the polymer, it

was possible to determine the velocity constant of the polycondensation reaction of 11-amino-undecanoic acid and the average length of the chains of the polyamide formed. The fine structure of the polyundecanamide was determined by means of x-ray diffraction of the fiber at maximum stretch. The electronic structure of the polar groups of the polyamide was studied by means of infrared absorption spectra and it was concluded that the bonding forces between the macromolecular chains were due principally to the interaction forces between the dipoles formed by the amide groups. New types of polyamides were made by polycondensation of the following: 10-amino-undecanoic acid, N-merhyl-11-amino-undecanoic acid, piperazonium adipate and sebacate; and copoly-condensation of 11-amino-undecanoic acid with N-methyl-11-amino-undecanoic acid. These polyamides were subjected to similar tests, and it was found that, in spite of their close chemical relationship, they varied widely in their physical properties such as solubility, point of fusion, and degree of crystallinity. The polyamides which did not contain cyclic groups could be extruded into fibers. There are 38 references.

TTD: 7-48

Polyamides. Polymeric amides from omega-amino acids. D. D. Coffman, N. L. Cox, E. L. Martin & F. J. Van Natta. *J. Polymer. Sci. 3,* No. 1, 85-95 (Feb. 1948).

Methods for the preparation of fiber-forming polymeric amides from ω-amino acids and their amide-forming derivatives are described. The variation in melting points of the polyamides with increasing chain length of the recurring unit is discussed. TTD: 7-48

Artificial fibers. Process for the extrusion of fused artificial materials. Henry Dreyfus (to Celanese Corp. of Am.). USP 2 437 686, Mar. 16, 1948.

Extrusion of fused thermoplastic compositions to form artificial filaments, foils, films, and the like, is generally accomplished in a vessel containing an atmosphere of inert gases. The vessel is recharged by placing the solid composition in a lock-chamber which is capable of being closed to the vessel while open to the outer air for charging. The lock-chamber is then closed and the atmosphere brought to equilibrium. The process may thus proceed continuously.

LCL TTD: 7-48

Filaments. Melt and extrusion of artificial filaments, films, and the like, and apparatus therefor. Henry Dreyfus & Wm. Poole (to Celanese Corp. of Am.). USP 2 437 687, Mar. 16, 1948.

When organic filament-forming compositions are spun or extruded by first melting by means of an inert liquid, a better and more uniform degree of melting of the composition is obtained by use of a deflecting baffle immersed in the melting liquid. This baffle deflects the solid compositions toward the wall of the heating container.

LCL TTD: 7-48

Filaments. Process and apparatus for the melt extrusion of artificial materials. Henry Dreyfus (to Celanese Corp. of Am.). USP 2 437 685, Mar 16, 1948.

Danger of excess heat during spinning or extrusion of molten, organic filament-forming compositions is overcome by immersing the composition in liquid heating mediums. These liquid mediums must be inert to the filament-forming composition and preferably should be of a lower density than the composition to be extruded.

LCL TTD: 7-48

Synthetic threads. Machine for making synthetic threads. Carl Hamel. Ger. P. 727 290, Oct. 30, 1942. *Bibl. Sci. Ind. Reports 5,* 460 (May 2, 1947).

Drawing included. TTD: 7-48

Fiber applications I 5

Felt-resistant wool. Felt-resistant wool by wet chlorination. H. Zimmerman, Alrose Chemical Co. *Am. Dyestuff Reptr. 36,* No. 17, 473-5 (Aug. 25, 1947).

The usefulness of some of the new chemicals tried as chlorinating agents for wool is reviewed. The chemistry, control, and stability of the usual chlorinating baths is discussed briefly. It is stated that the disadvantages of non-uniform chlorination, yellowing of the fiber, loss of chlorine to the atmosphere, are overcome by the use of certain chlor-sulfonamides in acid solution as the chlorinating agent. The chemistry of the wool fiber, the causes and mechanism of felting, the reason for the felt-resistant action of chlorine, and the possible applications of the controlled chlor-sulfonamide chlorinating process are described briefly. Wool chlorinated by this process is whiter than the original, has a soft resilient hand, retains the epithelial scale structure, and shows no appreciable alteration dyeing characteristics.

WPU, jr. TTD: 7-48

Insulating material. Insulation from low grade cotton. Anon. *Mfrs'. Record 117,* No. 6, 39, 64 (June, 1948).

Low grade cotton unsuitable for spinning and weaving is finding an expanding market in the manufacture of flameproof insulating material. The loose cotton is first processed to render it flameproof. It is then made up into bats of any desired thickness and covered with

paper, water-repellent material. U. S. government analysis shows that flameproof cotton insulation is up to 36% more efficient in resisting heat or cold than 10 other commercial insulating materials tested.

LCL TTD: 7-48

Preventing felting. Process to reduce or prevent felting of animal fibers. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 084, Jan. 1935. 4 pp. *Bibl. Sci. Ind. Reports 5,* 426 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Felting of animal fibers is reduced by treatment with large quantities of active oxygen or of compounds which give off oxygen. The experiments indicate that such action was only possible when large quantities were used than those necessary to produce bleaching or to promote felting. TTD: 7-48

Cotton felt. Process for making needle felts. Carleton S. Francis, Jr. (to Am. Viscose Corp.). USP 2 437 689, Mar. 16, 1948. (This patent is a continuation in part of USP 2 253 000).

A method is given for producing felts from relatively smooth-surfaced or relatively straight fibers. In general, a fiber such as cotton or a synthetic fiber of cellulosic composition is blended with a thermoplastic synthetic resinous material that has been formed into fibers. This blend is nap-felted or matted and then subjected to a heat treatment. The temperature must be below that at which the felt is damaged but high enough to render the resin fibers tacky. Upon cooling, the synthetic resin fibers become nontacky and adhere to the other fibers. It is suggested that 3-20% of the synthetic resin fiber be blended with the fiber to be felted. Needle felts are generally prepared by drawing the blend of resin fiber and unfeltable fiber through a woven gauze, and then applying heat and pressure.

CCJ TTD: 7-48

Elastic nylon articles. Production of elastic nylon articles. John R. Lewis, David McCreath & Reginald J. W. Reynolds (to Imperial Chemical Industries, Ltd.). USP 2 434 247, Jan. 13, 1948.

A process is described for making elastic nylon articles by impregnating the nylon in essentially undrawn state in the form of a filament, bristle, yarn, etc. with an acidic catalyst and heating at 80° C to 150° C under anhydrous conditions and in contact with a mixture of the vapors of formaldehyde and a monohydric alcohol until the nylon contains at least 4% (by weight) of combined formaldehyde.

GNR TTD: 7-48

Filaments. Magazine spinning gun for the production of filaments and fabrics. F. W. Manning. USP 2 437 264, Mar. 9, 1948.

A spray gun is designed for depositing filaments rather than droplets, and any thermoplastic or thermosetting materials fluidized by heating or solvent action may be used. Provision is made to feed the gun by means of a cartridge clip. Fluidized resin is fed into a chamber in which a rotating pair of vanes stretch the resin as it passes through the chamber to an orifice. Stretching is claimed to produce orientation of the filaments or fibers.

LCL TTD: 7-48

Filaments. Method and apparatus for the production of filaments from solids. Fred W. Manning. USP 2 437 263, Mar. 9, 1948. (Reference is made to USP 2 433 000 and 2 437 264).

A spray gun using any thermoplastic or thermosetting materials is designed to deposit filaments rather than droplets. The filament-forming material is fed into the gun as a solid rod. The rod is fluidized in the barrel of the gun by an electrical resistance coil and an air blast or other suitable fluid blast ejects the solution through nozzles to form filaments.

LCL TTD: 7-48

Impregnation. Impregnation of cellulosic material. Wm. E. Flood & Edw. Kosinszki (to Catalin Corp. of Am.). USP 2 434 106, Jan. 6, 1948.

A method is described for impregnating cellulosic material (rolls of paper) with a solution of styrene monomer in an inert volatile solvent. The impregnated material is warmed to the polymerization temperature of the styrene while preventing loss of the solvent, as by treatment in an autoclave, until polymerization has taken place. The volatile solvent is then evaporated from the product.

WPU, jr. TTD: 7-48

Laminated board. Process and apparatus for making laminated board. Chas. A. Upson (to The Upson Co.). USP 2 433 965, Jan. 6, 1948.

The patent describes a continuous process of making a laminated board from a series of sheets of paper-like fibrous material. This includes the steps of impregnating all the sheets with resinous material; maintaining the impregnated sheets in space relation to each other for a substantial time after impregnation; applying a binder material of thermosetting resin material to at least one of 2 opposed surfaces of such sheets; heating all of the sheets in the same cycle of heating without disturbing their space relation in order to cure the resin to the binding coating substantially simultaneously to a tacky state; bringing all of the sheets into simultaneous

contact with each other while the binding coatings are in a tacky state; subjecting the sheets to a sufficient pressure to cause them to be bound firmly to each other to form a laminated board; and finally subjecting the board to further heat until the setting of the resin has been completed.

RJB TTD: 7-48

Unwoven fabric. Method of cross laying. Geo. E. & Jas. E. Repass. USP 2 434 887, Jan. 20, 1948.

An unwoven fabric with improved strength weftwise is made by winding several flat rolls of sheeted fibers together so that portions of at least one roll of fibers are placed as a layer and cut off without overlapping at right angles to the direction in which the other rolls are wound into the finished fabric. TTD: 7-48

Fiber processing I 6

Oiling fibers. Process for treatment of fibers. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 086, Feb. 1935. 6 pp. *Bibl. Sci. Ind. Reports 5,* 427 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Liquid fatty acids having the general formula $R\text{-}X\text{-}(COOH)_n$ are used for the treatment of fibers during spinning. In this formula, R represents an aliphatic group with at least 8 C atoms and X represents an aryl or alkyl group which contains nitrogen, oxygen, sulfur, or phosphorus. TTD: 7-48

Staple fibers. Method and apparatus for converting bulk filament into staples. Robt. C. Wilkie (to Pacific Mills). USP 2 438 469, Mar. 23, 1948.

This is a basic patent on which 30 claims have been allowed for methods and apparatus designed to convert continuous filaments into a continuous sliver of nonconterminous, separated and drafted staples. By "staples" is meant the individual pieces into which the filaments are severed. TTD: 7-48

Unwoven fabric. Imitation fabric. Hugo Wurzburger (to Paul D. Wurzburger). USP 2 434 532, Jan. 13, 1948.

A flexible unwoven fabric is made from organic plastic material to simulate woven or knitted fabrics by molding the plastic material between rolls which provide the desired configuration. Flexibility in the imitation fabric is obtained by small grooves extending approximately 1/3 the circumference of the filaments that are formed by the engraving or embossing calender rolls.

GNR TTD: 7-48

INORGANIC FIBERS II

Fiber preparation III 1

Fiber preparation. Better cotton preparation is aim

of Georgia mill men. *Textile World 98,* No. 5, 129, 131, 226, 234 (May, 1948).

The highlights of the spring meeting of technical operating executives of Georgia included discussions concerning the conveying of cotton laps, controlling of workable waste, blending staple lengths, and card grinding frequencies.

LCL TTD: 7-48

Wool carding. Woolen card speeds are governed by stock. Gustav Zellnik. *Textile World 98,* No. 6, 127, 177, 178 (June, 1948).

The operating speeds of woolen cards should be governed by the type of stock being processed. Very long fibers should be carded with the main cylinder at reduced speeds and with the workers at increased speeds. Short fibers should be processed with the workers running at lower speeds. Lack of consideration for these operating principles will result in excessive waste and weakened yarn. A table of standard speeds for woolen cards is given.

LCL TTD: 7-48

Carding. Carding machine. Mitchell S. Fain. USP 2 435 431, Feb. 3, 1948.

A woolen carding machine is designed so that stock is delivered and carded on the lower half of the cylinder, is then removed and delivered to receive a final carding on the upper half of the cylinder, after which the stock is removed for the next process. By using the entire periphery of the carding cylinder to treat the fibers, the number of machines and floor space required are reduced. TTD: 7-48

Cotton dryer. Gravity flow cotton dryer having opposed throwing members. Wm. J. Roeder, USP 2 430 686, Nov. 11, 1947.

Seed cotton is dried by dropping through a counter blast of hot air in a vertical chamber in which agitating paddles are placed. TTD: 7-48

Drafting. Drawing mechanism for textile fibers. Fernand Piron (to Pacific Mills). USP 2 435 157, Jan. 27, 1948.

The mechanism is designed to draft fibers of wools, rayons, or mixtures of wool, rayon or other artificial fibers of lengths which range from 7/8" to 3" or longer and to make a product with improved evenness and strength. The mechanism is composed of 4 parts, the first 3 of which are consecutive pairs of drafting rolls, and the fourth consists of continuous apron with a top roll. The apron is supported and driven in the same direction and plane as the sliver by 2 rollers so spaced that a top roller, which is rotated by frictional contact with the apron over its front driving roll, has a large arc

of contact with the apron as the apron extends towards its rear driving roll. TTD: 7-48

Pneumatic stripper. Method and apparatus for stripping cylinders of textile machines. Ernest Clark (to Abington Textile Machinery Works). USP 2 433 810, Dec. 30, 1947.

A method and apparatus are described by which the cylinder of a carding engine is stripped by pneumatic means so that there is no interference with the continuous operation of the carding engine. While the carding cylinder is in operation, small widths of cylinder, about 1/3" across, are stripped by suction in a predetermined sequence to the end that the entire cylinder may be covered in regular cycles which may be of 90 minutes duration. The quality of the sliver is not impaired by the introduction of any uncontrolled waste matter during the process. TTD: 7-48

Waste machine. Waste machine. Chadwick P. Smith & Jas. R. Pangle. USP 2 436 338, Feb. 17, 1948.

A waste machine is designed to utilize the air circulation caused by the beater, together with an auxiliary conveyor, to carry the stock in process forward through the machine and lay it upon a cylindrical screen. No suction fans or air ducts are used in the machine. TTD: 7-48

Blends III 2

Blending. Textile fiber blending and distributing apparatus and method. John H. Senior (to Proctor & Schwartz, Inc.). USP 2 433 790, Dec. 30, 1947.

Apparatus and method are described to blend, mix and distribute textile fibers of different qualities, lengths, or colors mechanically without the use of manual labor. A mass of fiber is automatically spread upon a train of rolls which mix and blend the mass by breaking it into segments and rolling each segment downwardly between pairs of adjacent rolls into a storage bin beneath the rolls. TTD: 7-48

Spinning III 3

Blends. Spun dyed staple used in cotton-rayon blends. Harold Ashton, Courtaulds, Ltd. *Textile World 98*, No. 5, 143, 212, 215 (May, 1948).

Studies of rayon staple in England indicate the necessity for developing new techniques of handling in order to reduce the cost of operation. Direct spinning from tow to yarn is desirable. Studies of spun dyed staple in cotton-rayon blends seem promising.
LCL TTD: 7-48

Drafting. Long-draft roving has developed slowly.

Seth Carter. *Textile World 98*, No. 6, 133, 196-8 (June, 1948).

Long draft systems of spinning have developed slowly since 1900. Increased interest in long-draft roving systems has occurred among manufacturers, particularly among those who use synthetic fibers. Improvement in the preparation of drawing sliver has been a great factor in the success of the long-draft roving systems.
LCL TTD: 7-48

Spinning. Direct spinner for tow produces fine, strong yarn. C. Mallard Bowden, Textile World. *Textile World 98*, No. 5, 114-15 (May, 1948).

A new Saco-Lowell machine now under test in several mills produces a new type of staple rayon yarn direct from tow in a range from 20s to 80s. In one mill, 5 lb. tubes of continuous filament tow are creeled directly on a spinning frame. The tow is broken into spinnable fibers of various lengths by drafting, and the fibers are then twisted and wound by means of a conventional ring and traveler. The yarn produced is claimed to have greater strength and less elongation than ordinary yarn.
LCL TTD: 7-48

Spinning costs cut. Pneumafil installation cuts spinning cost. Anon. *Textile World 98*, No. 6, 114, 115 (June, 1948).

A Pneumafil type "CR" system installed on 20 frames in the spinning room of the Carlton Yarn Mills of Cherryville, N. C. has proved effective. Yarn numbers from 40s to 140s were spun with 30% fewer ends down.
LCL TTD: 7-48

Oiling rings. Twister ring lubricating device. Daniel K. Pope. USP 2 437 208, Mar. 2, 1948.

A shaft along the ring rail of a twister actuates a mechanism by means of which the internal surface of each twister ring is regularly supplied with lubricant. The lubricant is forced to the ring surface through holes in the ring from an individual cylinder which is filled with lubricant. TTD: 7-48

Roll drive. Scavenger roll mechanism. John A. Kooistra (to Davis & Furber Machine Co.). USP 2 438 290, Mar. 23, 1948.

A simple means is provided to drive a scavenger roll which may be easily cleaned, repaired or removed. TTD: 7-48

Roller weighting. Top roll weighting mechanism. Virgil A. Burnham (to Saco-Lowell Shops). USP 2 430 706, Nov. 11, 1947.

Top rolls of drawing mechanisms for spinning and roving frames are equipped with a spring weighting system which has no contact with the roller beam.
JHB TTD: 7-48

Spindle mounting. Textile spindle mounting. Herbert Gleitz & Chas. E. Miller (to The Marquette Metal Products Co.). USP 2 433 987, Jan. 6, 1948.

A method is described in which a spindle assembly is mounted on a spinning or twisting machine frame or spindle rail so that the spindle assembly may be quickly and easily moved from its normal band-driven position to a non-driven position with respect to the driving band.
JHB TTD: 7-48

Synthetic cct. Roll covering. Jos. Rockoff (to The Dayton Rubber Co.). USP 2 437 362, Mar. 9, 1948.

Rollers in roving and spinning frames are provided with a cot of a synthetic rubber composition which exhibits a low static build up, resists oil and abrasive substances, has good aging and wear resisting properties, and does not cause excessive eyebrowing. TTD: 7-48

Tensioning mechanism. Thread tension arrangement in textile machines. Albert Brügger. USP 2 438 034, Mar. 16, 1948.

A mechanism is shown which applies tension to yarn in continuous spinning or twisting machines by means of at least one thread brake, the braking action of which is adjusted by a scale indicator. TTD: 7-48

Unit lengths. Method and apparatus for separating knitted fabrics. Jas. L. Getaz. USP 2 437 735, Mar. 16, 1948.

A knitted fabric which is to be separated into unit lengths after it has been knitted in a continuous piece has 1 or 2 courses of a separating yarn inserted at desired intervals. The separating yarn has physical and chemical characteristics which are different from those of the body yarn and has enough strength to be knit. Upon heating the knitted fabric the strength of the separating yarn may be greatly reduced. As the knitted fabric passes through a consecutive pair of rolls, the second pair of which revolves slightly faster than the first pair, the fabric is torn apart along the course of the separating yarn.
JAW TTD: 7-48

Roller weighting. Weighting motion for drafting rollers. John Schofield, Jr. USP 2 437 562, Mar. 9, 1948; Brit. P. 589 895, *Textile Mfr. 74,* 244 (May, 1948).

An adjustable weighting mechanism for drafting rollers of ring spinning and other textile machines applies pressure to the rollers by means of a combination of stirrups and levers which bear on the top of the upper rollers and on the bottom of the lower rollers. TTD: 7-48

Winding III 4

Piece rates. Cone winding task easily computed from data. Rudolph Leppla, Forstmann Woolen Co. *Textile World 98,* No. 5, 118-19, 220, 222 (May, 1948).

Detailed steps of the time study necessary for job analysis and setting piece-work rates are given for the cone winding of woolen and worsted yarns. Tables and formulas for computing tasks and rates for different sizes and types of yarn are included.
LCL TTD: 7-48

Bobbin holder. Articulated bobbin holder. Wm. E. Moore (to Edw. J. McBride). USP 2 437 471, Mar. 9, 1948.

An easily adjusted bobbin holder, whose working parts are enclosed to prevent snagging yarn, is designed for use in a warper creel. TTD: 7-48

Clamp. Spool. Frank J. Lenox. USP 2 434 363, Jan. 13, 1948.

A spool is described in which the spool heads are attached to the barrel by means of a metal clamp without the use of glue or staples. TTD: 7-48

Cutting knots. Knot or slub catcher. Conard J. Arrington (to U. S. Rubber Co.). USP 2 434 091, Jan. 6, 1948.

When handling exceptionally heavy yarns in the ordinary knot or slub catcher in winding machines, distortion may occur in the machine when a knot is caught, because of the strength of the yarn. A slub catcher is shown in which the slub causes the yarn to move to a device which severs the yarn before excessive tension can be transmitted through the yarn to injure the machine. TTD: 7-48

Thread guide. Yarn winding mechanism. Howard W. Doughty, Jr. (to Foster Machine Co.). USP 2 436 559, Feb. 24, 1948.

A larger cone yarn package is formed with controlled tension and lay of yarn by means of a thread guide, the acceleration or deceleration of which are controlled by a traverse cam which has an acceleration factor of 1 to 1 1/8 from the base to the nose of the package and a deceleration factor of 1 1/8 to 1 from the nose to the base. TTD: 7-48

Uniform tensioning. Tension device. Henry J. McDermott (to Am. Viscose Corp.). USP 2 438 180, Mar. 23, 1948.

Either wet or dry yarns may be efficiently provided with a uniform tension during the winding operation. A thread tension device is described in which the wear

caused by the passage of yarn thereon is distributed uniformly so as to increase the life of the device and maintain quality of product during the full period of use.

TTD: 7-48

Winding traverse. Traversing mechanism. Ralph M. Stream (to Owens-Corning Fiberglas Corp.). USP 2 433 304, Dec. 23, 1947.

A high speed traverse mechanism is described which will permit material in strand form to be wound into packages at greater speeds and with more uniform winding.

JHB TTD: 7-48

Yarn processing III 5

Slashing. Reeves' Mill achieves slasher tension control. C. Mallard Bowden. *Textile World 98,* No. 6, 122, 123, 178, 180 (June, 1948).

The constant tension control on slashers by the use of multi-motor drive controls, which feature the Westinghouse Rototrol in an installation at the Mill's Mill No. 2 of Reeves Bros. Inc., Woodruff, S. C. is described. Speeds of 40-50 yards per minute are now obtained on constructions varying from 1 to 4 yards per pound as compared with former speeds of around 25 yards per minute.

LCL TTD: 7-48

Bobbin support. Auxiliary bobbin support. Fritz Lambach. USP 2 437 100, Mar. 2, 1948.

An auxiliary bobbin support for use on the shank of a bobbin holder in a creel has a flexible or compressible cage which may be adapted to hold yarn packages wound on either cylindrical tubes or conical tubes.

TTD: 7-48

Knots. Knot. Arthur D. Carter. USP 2 438 537 & USP 2 438 538, Mar. 30, 1948.

Improved knots are described for use in weaving, winding, and reeling operations where nylon, regenerated cellulose, or filament yarns are processed. TTD: 7-48

Rayon yarn transfer. Yarn transfer mechanism. Morgan J. Rarick (to E. I. du Pont de Nemours & Co.). USP 2 434 964, Jan. 27, 1948.

A series of small rotating fluted rolls are arranged on a rotating member to take yarns in the form of a warp sheet from an element where the yarn is under tension and deposit the yarn on a traveling belt under zero tension. Only those rolls receiving yarn at any time are rotated and, should a wrap develop on one of the rolls, a contact is closed, causing the assembly to be rotated, moving the roll on which the wrap is developed out of action and at the same time moving a new roll into

position. When a wrap develops, a signal may be sounded, warning the operator, thus enabling him to clear the wrap and prevent interference with the continuity of the operation.

VBS TTD: 7-48

Rayon yarn transfer. Yarn transfer mechanism. Edgar H. Schmidt (to E. I. du Pont de Nemours & Co.). USP 2 434 963, Jan. 27, 1948.

A device described for transferring yarn, particularly wet viscose rayon yarn, from an element where the yarn is under tension to an element where the yarn is under no tension. The yarn is drawn from the tension rolls over a continuously rotating roll provided with cam-operated flippers which impart an accelerated movement to the yarn when the trailing edge of a flipper becomes tangent to a perpendicular from the floor. The yarn falls perpendicularly from the edge of the flipper under its own weight and is piled in a series of loops on a traveling collecting belt.

VBS TTD: 7-48

Reducing wear. Strand guide. Standish S. Rowe. USP 2 434 227, Jan. 6, 1948.

Wear on a thread guide is eliminated by facing the portion of the guide through which the yarn passes with a separate piece of carbide material. The carbide material resists abrasion by the yarn. The guide is especially designed for use on upstroke twisters.

JAW TTD: 7-48

Vacuum drying. Method of vacuum drying packages of yarn, including rotating the packages. Pieter H. van Scherpenzeel (to Am. Enka Corp.). USP 2 432 951, Dec. 16, 1947.

Rayon yarn packages are dried in a closed container to effect the drying of the rayon at lower temperature then would otherwise be possible. Drying proceeds from the inside to the outside of the package. The rayon packages are rotated during the drying operation so that all portions of the outside of the packages are exposed to the shell of the container for substantially the same amount of time in order to eliminate differential shrinkage in the packages.

CAC TTD: 7-48

Yarn conditioning. Textile product and process. Robt. D. MacLaurin (to Industrial Rayon Corp.). USP 2 436 219, Feb. 17, 1948.

A yarn conditioner, which is claimed to reduce mechanical abrasion, to aid in stabilizing the twist, and to reduce snagging and snarling, is described. It is prepared by melting together a hydrogenated fish oil and the product produced by reacting at least 20 mols of ethylene oxide with one mole of a partial fatty acid polyester such

as sorbitan trioleate, mannitan trioleate, sorbitan trilaurate, etc. The conditioner is most frequently applied in aqueous solutions or suspensions containing 0.3 to 5.0% by weight, of the aggregate and 0.5% (of the aggregate weight) of an alkaline dispersing agent such as an alkylolamine. Small amounts of tetrachlorophenol may be used as stabilizers. It is best to apply the conditioner prior to the twisting operations, allowing a deposition of 0.75 to 10% by weight (based on the weight of the yarn).

GNR TTD: 7-48

Yarn products III 6

Braiding. Sling and method of making same. Irvin R. Mitchell (to A. Leschen & Sons Rope Co.). USP 2 430 071, Nov. 4, 1947.

A method of braiding hoist slings to eliminate the usual twisting tendency and crossovers is described.

JHB TTD: 7-48

Finishing agent. Fibrous products. Henry Dreyfus, Donald Finlayson & Richard G. Perry (to Celanese Corp. of Am.). USP 2 434 913, Jan. 27, 1948.

Fibrous products, particularly cordage, can be improved in their wet tenacity, handle, and splicing properties by the addition of a water-resistant cellulose ester or ether in a nonaqueous liquid. An example is the use of methylcellulose dispersed in a high-boiling liquid hydrocarbon. Impregnation is conducted within a temperature range of 120-150°C in order to remove substantially any water in the material.

LCL TTD: 7-48

Plied yarns. Method of making cabled yarns and means for carrying out said method. Jules H. Berthier & Jos. A. Colin (to Comptoir de Materiel Textile). USP 2 434 384, Jan. 13, 1948.

The uniformity of cabled yarns is increased to a point not possible with present methods. Doubled or twisted yarns identical with each other as to twists and tensions are made simultaneously by means of fliers of the so-called double twist system. The flyers rotate at equal speeds. In each flyer, an assembly of threads is presented and delivered to the flier by a positively driven mechanism.

JAW TTD: 7-48

YARN TO FABRIC IV

Splicing. Splicing monofilament fabrics. Geo. A. Spencer (to The Firestone Tire & Rubber Co.). USP 2 435 467, Feb. 3, 1948.

Splicing of monofilament fabrics is accomplished by

making a heat sealed butt joint between thermoplastic monofilament fabrics.

GNR TTD: 7-48

Yarn preparation IV 1

Materials handling. Tray suggested to speed battery filling. Alfred R. Kandler. *Textile World 98,* No. 5, 137, 192 (May, 1948).

A tray for transporting bobbins to the weave room and for increasing the magazine capacity of stationary-magazine bobbin-changing looms is described.

LCL TTD: 7-48

Sizing. Process for the sizing of synthetic fibers. Aceta GmbH. I. G. Farbenindustrie. T. H. K. report. Patent application A 60 213 IVa/8k. PB L 62 964, Jan. 1931. 7 pp. *Bibl. Sci. Ind. Reports 5,* 342 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Fibres are first treated with a slow-drying oil mixture, then with a quick drying sizing mixture, preferably containing drying oil. Acetate rayon is one of the fibers specified.

TTD: 7-48

Sizing. Sizing mixture. Aceta GmbH. I. G. Farbenindustrie. T. H. K. report. Patent application A 69 132 IVa/8k. PB L 62 965, Apr. 1933. 4 pp. *Bibl. Sci. Ind. Reports 5,* 342 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The original application described mixtures of a drying oil, a mineral oil, a resin with high acid number which is soluble in oil, and optionally a mineral oil sulfonate soluble in oil. This expansion claims that the resin may be replaced wholly or in part by neutral or acid salts of fatty, naphthenic, or resin acids, soluble in the water-free mixtures, or by their derivatives or transformation products.

TTD: 7-48

Sizing material. Process for sizing yarns. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 144, Apr. 1936. 2 pp. *Bibl. Sci. Ind. Reports 5,* 431 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The prior application pertained to the sizing of yarns designed for the manufacture of crepe. For this purpose, products obtained by hydrolysis of mixed polymers are used which are prepared from polymerizable unsaturated carboxylic acids (maleic acid and its derivatives being excepted) and from saponifiable derivatives of vinyl alcohol. The document will reproduce poorly.

TTD: 7-48

Warping. Crepe warping techniques are applicable to

Bemberg. John Gassman, Bruck Silk Mills. *Textile World 98*, No. 5, 113, 190 (May, 1948).

Warping Bemberg crepe on the cotton system of low-speed warping requires special techniques which include (1) Maintaining a rebeaming tension which is a compromise between the best tension to prevent ends rolling and the best tension to eliminate ends breaking, (2) Maintaining a low and even humidity, (3) Using the shortest possible distance from the section beam to the crossing reed on the rebeamer, (4) Avoiding crossed ends, (5) Inspection for lost ends.
LCL TTD: 7-48

Sizing. Yarn smoothing apparatus and method. Allison A. Wood. USP 2 438 084, Mar. 16, 1948.

Outwardly projecting fibers on size-treated yarns are eliminated in a slasher in which each strand in the warp in process is passed over a groove in the rolls which direct the material to the drying cans, and a groove on the drying cans. The action of the grooves smooths the yarn in process. TTD: 7-48

Weaving IV 2

Carpets. Portable loom creel and adjusting means therefor. Leslie E. Bryant (to Nye-Wait Co., Inc.). USP 2 437 070, Mar. 2, 1948.

A portable creel which can be loaded at a central preparation point and delivered to a loom, or quickly moved from one loom to another, minimizes the time lost when spools run out or a tie over is necessary in the manufacture of rugs and carpets.
JAW TTD: 7-48

Connecting cord. Means for connecting the dobby jack and the harness frame of a loom. Clarence E. Harris. USP 2 437 739, Mar. 16, 1948.

The cord connecting the dobby jack and the harness frame is provided with a means to make the junction easily. TTD: 7-48

Cords. Check-strap for looms. Sherman D. Lesesne (to Graton & Knight Co.). USP 2 435 749, Feb. 10, 1948.

A loom check strap is made by securing strong cord strands between 2 layers of leather. The cords tend to make these check-straps stretch more uniformly than would be the case if the straps were made solely of leather, the vagarities of which may cause the straps to stretch to different extents. TTD: 7-48

Impact disks. Loom picker. Sherman D. Lesesne (to Graton & Knight Co.). USP 2 435 748, Feb. 10, 1948.

A picker which is held resiliently firmly on the picker

stick is constructed with a metal reinforcement for the picker body. Leather impact disks are held in a circular tube which forms a part of the metal reinforcement. TTD: 7-48

Loom adjustment. Cloth take-up mechanism. Jas. M. Tuten (to Draper Corp.). USP 2 437 367, Mar. 9, 1948.

A take-up mechanism on a loom is designed to permit the adjustment of both the guide lug and the pinion of the rack without moving the gear rack out of alignment with its guideways. TTD: 7-48

Pile yarns. Tension regulator and equalizer for pile fabric looms. Harold H. Fonda (to Nye-Wait Co., Inc.). USP 2 436 067, Feb. 17, 1948.

Tension in warp yarns in the surface or pile yarns of a fabric is regulated and equalized by a device which may be used to regulate tension in any warp.
JAW TTD: 7-48

Protecting warp yarn. Dent for weaving reeds. John P. Lussardi (to Andrews Company). USP 2 434 114, Jan. 6, 1948.

The wire forming a dent of a loom reed has a longitudinal bead with a convex surface on one side to prevent the warp yarn from being cut by the sharp edges of the reed during weaving. TTD: 7-48

Release. Loom letoff mechanism. Jesse O. Foster & Geo. R. Clawson. USP 2 435 437, Feb. 3, 1948.

A warp beam is positively driven so that it will release the requisite length of yarn with each pick of the loom. A pawl and rachet, actuated by a cam, turn the beam intermittently and move the whip-roll so as to provide suitable tension on the warp yarn.
JAW TTD: 7-48

Rope mats. Loom mechanism. Harry A. Beckstrom. USP 2 434 344, Jan. 13, 1948.

The object of this patent is to improve weaving efficiency when making rope mats, and to insure a much tighter weave with less filling breakage. This is accomplished by means of a wedge-shaped batten which extends from edge to edge of the mat and moves so as to engage the warp threads and to pack the weft threads without using the usual reed.
JAW TTD: 7-48

Shuttle spur. Shuttle. Emerson B. Tifft (to Draper Corp.). USP 2 434 819, Jan. 20, 1948.

A shuttle is provided with a shuttle spur which is inserted in a manner to prevent loosening at speeds up to 200 picks per minute. TTD: 7-48

Warp tension. Means for controlling the tension on the warp in looms. Raynaldo P. Jacques (to Uxbridge Worsted Co., Inc.). USP 2 430 639, Nov. 11, 1947.

The invention embodies a mechanism to maintain constant warp tension and includes a means for positively driving a warp beam both forwardly and in reverse.
JHB TTD: 7-48

Cutting knots. Device for catching and cutting off knots in running synthetic-thread ribbons. Kurt Grunert. Ger. P. 727 171, Oct. 28, 1942. *Bibl. Sci. Ind. Reports 5,* 460 (May 2, 1947).

Drawing included. TTD: 7-48

Looms IV 2 a

Kellogg loom. Kellogg loom has unique design features. Wm. A. Newell. *Textile World 98,* No. 6, 118, 119, 120, 121 (June, 1948).

The new Kellogg loom is designed to weave fabrics at 220-230 picks per minute from cotton or rayon yarns which have a considerable range as to fineness. The loom frame is of welded steel and is lighter than the frame of a current loom. Light metals are used where possible, especially in reciprocating parts. Subassemblies on the machine are designed for accessibility. The operating principles of the loom are conventional, although many refinements have been made in the design of individual mechanisms. The construction and operation of the loom is described in detail.
LCL TTD: 7-48

Sulzer weaving machine. Warner and Swasey introduces Sulzer weaving machine. Wm. A. Newell. *Textile World 98,* No. 6, 110, 111, 112, 113, 228, 230, 232 (June, 1948).

The new Warner and Swasey "weaving machine" is a simplified version of a Swiss-built Sulzer unit. It is a precision-built machine, which is reported to operate at speeds from 210- to over 240 picks per minute in widths up to 110 inches, and can accommodate 8 harnesses. Multiple-width fabrics can be woven simultaneously on the unit as long as the total widths of the fabrics is 110 inches less the distances required by the tucking units required to form intermediate selvedges. The filling yarn is supplied from a cone on one side of the machine to a small metal yarn carrier, which carries the filling across the warp through metal guides to a receiver at the opposite side without coming in contact with the warp yarn. Each pick is cut and each end of the filling is formed into a selvedge. The empty carrier is returned by a conveyor to the initial operating position.
LCL TTD: 7-48

Hand loom. Hand operated loom. Jos. Tiefenthal. USP 2 437 716, Mar. 16, 1948.

A simple, sturdy, light-weight, collapsible, portable hand loom is described.
JAW TTD: 7-48

Loom dobby. Positively operating dobby. Otto Zollikofer (to Sulzer Freres S. A.). USP 2 438 796, Mar. 30, 1948.

A shedding mechanism or a double-life open-shed dobby is described which has positive operation of the free ends of the balance lever. The free ends of the balance lever are actuated by movable draw knives. The forces on the knives are compensated in both directions. TTD: 7-48

Pile fabric loom. Loom for weaving pile fabric. Eugene F. Clark (to Marshall Field & Co.). USP 2 437 379, Mar. 9, 1948.

An improved pile fabric loom is described which places the yarn making up the pile adjacent to the base fabric closer together than is customary in this type of fabric. The loom is practically automatic in operation and is designed to weave pile fabrics rapidly. TTD: 7-48

Reducing wear. Shuttle check. Napoleon Lamarche. USP 2 436 310, Feb. 17, 1948.

The movement of the shuttle into the box is checked in order to reduce wear and shock on the shuttle, boxes, and picker-sticks by means of several shuttle checks which operate on an elongated attaching bar that distributes pressure on box front. The checks are equipped with springs and adjusting nuts to regulate pressure.
JAW TTD: 7-48

Rubber-fabric covering. Cover on take-up roll. Ernest Nassimbene (to Gates Rubber Co.). USP 2 438 296, Mar. 23, 1948.

A take-up roll covering composed of a sheet of rubber with a fabric backing has spaced ridges separated by grooves on its surface. TTD: 7-48

Shuttle changer. Spool-changing mechanism for looms. José M. Barrera. USP 2 439 977, Nov. 4, 1947.

A mechanism for changing bobbins in shuttles of automatic looms when the weft thread is exhausted, permits a gradual movement of the bobbin which results in the exact positioning of the bobbin in the shuttle.
JHB TTD: 7-48

Shuttle surface. Shuttle. Karl A. Gelpke (to Gelco Development Corp.). USP 2 436 356, Feb. 17, 1948.

A shuttle which saves power and repairs through re-

duced weight is die cast in 2 longitudinal sections from light metals such as magesium, or duralumin. The shuttle section which faces the reed is provided with a fiber or plastic surface to reduce abrasion between the shuttle and reed. The metal in the shuttle is treated to radiate heat to a greater degree than untreated metal.
TTD: 7-48

Stop mechanism. Loom stop motion. Leonard M. Rogers (to Draper Corp.). USP 2 437 406, Mar. 9, 1948.

An electromechanical loom stopping mechanism is described in which the moving parts are of light-weight construction, are not susceptible to easy disarrangement, are immune to trouble caused by lint and grease deposits, and require only low-voltage electric power for operation.
TTD: 7-48

Streamlined strap. Adjustable lug strap. W. Irving Bullard. USP 2 436 353, Feb. 17, 1948.

The efficiency and life of a lug strap are increased by making the strap adjustable at its heel end, which is readily accessible. A square or hexagonal bolt through the lug strap is used to hold the strap rigid. The strap is streamlined to impart "whip" spring through picker stick to shuttle.
JAW TTD: 7-48

Weaving. Harness motions. Leland D. Cobb (to Draper Corp.). USP 2 437 349, Mar. 9, 1948.

Openings of different size in the shedding mechanism of looms are obtained without changing cams by using an elongated gear as a fulcrum point for harness treadles. A clamp holds the treadle in proper position and permits re-setting to care for lost motion.
JAW TTD: 7-48

Weaving pile fabrics. Method of an apparatus for weaving. Eugene F. Clark (to Marshall Field & Co.). USP 2 437 378, Mar. 9, 1948.

A mechanism is incorporated in a loom for the weaving of pile into fabrics independently of any apparatus for the weaving of the fabric base. The pile may be regulated, as to length and tightness, by means of spaced fingers mounted on the loom and extending parallel with the warp.
JAW TTD: 7-48

Control devices — IV 2 b

Electric stop motion. Electric loom controlling means. Victor F. Sepavich & John C. Manoog (to Crompton & Knowles Loom Works). USP 2 436 022, Feb. 17, 1948.

This invention relates to an electronic type of stop motion which is actuated by either warp or filling yarn breaks. The device is synchronized with the mechanical motion of the loom so that it differentiates between warp and filling faults.
TWH TTD: 7-48

Protector rod. Loom protector rod actuating mechanism. Wm. Languirant (to Textile Research Co.). USP 2 436 754, Feb. 24, 1948.

A loom protector rod mechanism is provided which follows the lay and shuttle movements more quickly than is possible with a coil spring arrangement. Pressure on the shuttle is released as it is picked from the box and pressure is applied to the box binder when the shuttle is entering the box.
TTD: 7-48

Stop mechanism. Stopping means for weft replenishing looms. Victor F. Sepavich (to Crompton & Knowles Loom Works). USP 2 435 699, Feb. 10, 1948.

A simple and effective means to stop a loom when the shuttle is improperly placed for transfer on weft replenishing beat of the loom is accomplished by providing an electric switch which will be closed by a misplaced shuttle and thereby will actuate an electro-magnetic device to stop the loom.
JAW TTD: 7-48

Stop motion. Stop motion for looms, etc. Julia Kyner. USP 2 436 438, Feb. 24, 1948.

A highly resilient metal, such as beryllium copper of spring quality, is used in apparatus to detect and operate an electrical stop motion for slack or broken ends in weaving, winding, twisting, or warping.
JAW TTD: 7-48

Warp tension. Warp tension attachment. Geo. K. Nicholas. USP 2 438 675, Mar. 30, 1948.

A warp tensioning attachment for small-size looms is provided which eliminates the necessity of using a warp beam. Coiled springs attached to cords at each end of a roller over which the warp yarn passes cause suitable tension in the warp.
TTD: 7-48

Weft replenishing. Brake and dampener for rocking bobbin magazines. Richard G. Turner (to Crompton & Knowles Loom Works). USP 2 437 627, Mar. 9, 1948.

A mechanism is provided which eliminates undesirable vibration of the magazine and attendant rolling of the bobbins in the magazine after weft has been replenished in a loom which utilizes 2 shuttles and a rocking magazine with 2 stacks of reserve bobbins.
TTD: 7-48

Textile patterns. Device for the automatic heating and working of textile patterns. Ernst Sommer. Application S 137 864 VII/52a, July, 1939. Ger. P. 707 106. *Bibl. Sci. Ind. Reports 5,* 367 (Apr. 25, 1947).

Drawing included. TTD: 7-48

Knitting IV 3

Nylon staple. Nylon staple in hosiery. W.B. Vincent, E. I. du Pont de Nemours & Co. *Am. Dyestuff Reptr. 37,* No. 8, 271-4 (Apr. 19, 1948).

A review is made of recent development work in the hosiery field with yarns spun of nylon staple. Among the topics considered are the physical properties, the lengths of nylon staple, the use of nylon staple alone or in blends, the types of hose which can be prepared, and the wear, shrinkage, comfort, appearance, and dyeing properties of nylon staple hose.

WPU, jr. TTD: 7-48

Hosiery. Method of knitting. Eugene St. Pierre (to Hemphill Co.). USP 2 433 931, Jan. 6, 1948.

A device for producing automatically mutiple yarn hosiery on a circular independent knitting machine eliminates the method by which hosiery is produced by knitting the leg in tubular form, cutting the heels and toes by hand and then sewing the parts together. The mechanism consists of a cylinder with a full complement of needles and a dial with half as many needles. Four feeds are spaced around cylinder and dial so arranged that yarn may be fed to either cylinder or dial needles or both.

JAW TTD: 7-48

Knitted fabric. Method of manufacturing Jacquard-patterned double-looped knitted warp fabrics. Wilhelm Barfuss Wirkmaschinenfabrik. Ger. P. 721 189, May 28, 1942. 3 pp. (Application B 187 162 VII/25a, Apr. 25, 1939). *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. Supplement to patent 686 762. TTD: 7-48

Knitting. Method of loop widening and a flat frame knitting machine for carrying out this process. Theodor Günther. Ger. P. 722 568, July 13, 1942. 6 pp. *Bibl. Sci. Ind. Reports 5,* 460 (May 2, 1947).

Drawing included. TTD: 7-48

Knitting. Method of manufacturing knitted fabrics with boltlike loops on flat frame knitting machines. Robt. Gotze. Ger. P. 723 438, Aug. 5, 1942. 4 pp. *Bibl. Sci. Ind. Reports 5,* 460 (May 2, 1947).

Drawing included. TTD: 7-48

Knitting. Stocking and method of production. Edwin B. Beacham. USP 2 435 489, Feb. 3, 1948.

The invention improves the fit of full fashioned hosiery by using simple and expeditious methods of knitting to overcome defects which occur at the heel and at the ankle top.

JAW TTD: 7-48

Knitting machine. Flat Jacquard knitting machine or Jacquard pearl knitting machine with several cams. Edouard Dubied & Cie, S. A. Ger. P. 722 290, July 6, 1942. (Application D 72 080 VII/25a, Feb. 12, 1936). *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. TTD: 7-48

Knitting stockings. Method of manufacturing a stocking with a French heel on the flat frame knitting machine. Gabriele Dietrich. Ger. P. 718 851, Mar. 23, 1942. 4 pp. (Application D 76 544 VII/25a, Nov. 10, 1937). *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. TTD: 7-48

Moistening yarn. Yarn moistening appliance for flat frame knitting machine, etc. Paul H. Aurich. Ger. P. 718 426, Mar. 12, 1942. 6 pp. (Application A 91 549 VII/25a, June 19, 1940). *Bibl. Sci. Ind. Reports 5,* 459 (May 2, 1947).

Drawing included. TTD: 7-48

Knitting machines IV 3 a

Knitting. It pays to recondition full-fashioned machines. H. B. LeFeaux. *Textile World 98,* No. 6, 123a, 123b, 176, 177 (June, 1948).

The use of fine yarns emphasizes the need for proper maintenance of full-fashioned knitting machinery. A practical method for overhaul and reconditioning of full-fashioned machines is presented.

LCL TTD: 7-48

Knitting. Loop transfer methods show knitting ingenuity. Chas. R. Carter. *Textile World 98,* No. 5, 120-21 (May, 1948).

The operation of latch needles is discussed in regard to the 3 modern methods used to transfer loops from one needle to another.

LCL TTD: 7-48

Flat knitter. Power-operated flat frame knitting machine. Cecil D. Alexander & Samuel Gibson (to

Brit. Textile Mfg. Co., Ltd.). USP 2 434 782, Jan. 20, 1948.

This invention provides an effective tensioning means for restraining fabric being knitted against contraction as the knitted fabric is being fed from the needle bed to the take-down roller. Adjustable fingers are provided at opposite sides of the machine, each finger being adapted to pass through the loops of the respective selvedge stitches, thereby holding the fabric in such position that the outer selvedge edge is knitted with the same length stitch as at the center of the fabric, resulting in a level pull-down, and maintaining a full width, without contraction, of the fabric.
JHB TTD: 7-48

Knitting. Knockover bit assembly and mounting therefor. Frank. G. Weisbecker. USP 2 430 694, Nov. 11, 1947.

A knockover bit assembly for a straight knitting machine permits easy adjustment and proper lateral alignment without removing the assembly from the machine.
JHB TTD: 7-48

Knitting. Latch needle opener. Stanley A. Wytovich (to Blossom Products Corp.). USP 2 436 241, Feb. 17, 1948.

A brush is motivated by the rotating cylinder of a knitting machine to open the latches and to clean the hook and pivotal portions of the needles. TTD: 7-48

Knitting needle. Knitting machine needle. Roy C. Amidon (to Vanity Fair Mills, Inc.). USP 2 436 371, Feb. 24, 1948.

A knitting needle is designed and manufactured so that there is no danger of the needle and the needle tongue catching on the thread guides as the needles pass between the guides or the guides pass between the needles TTD: 7-48

Preventing streaks. Needle cam for circular knitting machines. Horace L. Curtis, Geo. H. McKinley & Geo. H. Miller (to Scott & Williams, Inc.). USP 2 435 269, Feb. 3, 1948.

Streaks are eliminated from fabrics made on circular knitting machines by use of a needle cam which closely controls the position of the needle butts during the knitting wave. TTD: 7-48

Stitch-forming mechanism. Knitting machine. Kenneth Howie (to Wildman Mfg. Co.). USP 2 436 171, Feb. 17, 1948.

An improved construction and arrangement of the stitch-forming elements is described for application to full-fashioned knitting machines of the cotton type. The breakage of jack sinker noses is reduced by use of sinkers

especially constructed with short noses for use with long nosed dividers. TTD: 7-48

Throat plate. Circular knitting machine. John J. McDonough (to Scott & Williams, Inc.). USP 2 436 318, Feb. 17, 1948.

Yarns to be knit, with special stitches, such as terry or plating stitches are presented to the needles and sinkers at different levels separated as widely as possible by means of a throat plate which has 2 levels. Each level is effective for both rotary and reciprocating knitting. The yarns from 1 or more fingers may be presented selectively at either level by varying the elevation at which the yarn appears at the throat plate.
JAW TTD: 7-48

Warp knitting. Warp yarn feeding means for warp knitting machines. Fritz Lambach. USP 2 430 022, Nov. 4, 1947.

A device is described for warp knitting machines which permits the use of warp beams of large diameter and prevents the breakage of yarns when they pull upon the warp beam. Automatic assistance is given in feeding yarns to the knitting implements upon and during the release of the beam brake in response to a pulling action of the knitting implements on the yarns. TTD: 7-48

Yarn carrier. Knitting machine. Frank G. Weisbecker. USP 2 430 695, Nov. 11, 1947.

An improved form of flexible yarn carrier on a straight full-fashioned hosiery knitting machine, which is durable and simple to manufacture, has a guide tube support which permits yarn guide tubes to be readily replaced.
JHB TTD: 7-48

Control devices — IV 3 b

Stop mechanism. Apparatus for detecting imperfections in filamentary materials. Paul R. Powell (to Western Electric Co., Inc.). USP 2 434 864, Jan. 20, 1948.

This apparatus is for detecting imperfections in filamentary material and for stopping the operation of knitting and braiding machines when a knot or other enlargement occurs. The filament is run through a size gauge which is supported on a rotary type electric switch. When a knot occurs, this defect engages the size-gauge and rotates it, thereby tripping the switch and stopping the machine.
WGM TTD: 7-48

Fabric construction — IV 3 c

Pile fabric. Warp knitted fabric. Milton Newman. USP 2 435 897, Feb. 10, 1948.

A fabric made on a warp knitting machine has uncut loops to imitate terry cloth, or the loops may be cut to form a pile fabric similar to plush. Separate parallel lines of chain stitches which are the pile loops and extend warp-wise of the fabric are knitted to a pair of yarns which constitute the main body yarns of the fabric. The main body yarns are employed primarily to form a backing fabric which binds the pile loops firmly.
JAW TTD: 7-48

Special fabrics IV 4

Lightweight wool. Lightweight fabrics. Anon. *Can. Chemistry & Process Industries 32*, No. 5, 469 (May, 1948).

A new wool fabric, weighing from 1½ to 7 oz. per sq. yd., has been developed by 2 United Kingdom firms. It consists approximately of 95% wool and 5% nylon and is claimed to be 4 times as strong as any known wool fabric of similar weight. TTD: 7-48

Carpet fabric. Pile fabric. Edw. J. Dacey (to A. & M. Karagheusian, Inc.). USP 2 430 559, Nov. 11, 1947.

A pile fabric with ground and figures constructed from pile of different heights provides distinctive and unique texture effects.
JHB TTD: 7-48

Chenille. Hook and knife unit for chenille machines. Walter A. Behrens. USP 2 436 545, Feb. 24, 1948.

A mechanism is described that permits the hook and knife units employed in the production of chenille to be readily displaced to an inoperative position in which they are easily accessible and easily restored to their original position.
JAW TTD: 7-48

Nylon yarn guide. Yarn guide for braider carriers. John P. King (to Smith-King Co.). USP 2 437 539, Mar. 9, 1948.

A yarn guide is described which is rigidly connected to but is easily removed from a braider carrier through which glass or nylon yarns are processed. TTD: 7-48

Tire fabric. Drying of textile materials. Jas. W. Illingworth (to Dunlop Rubber Co., Ltd.). USP 2 438 366, Mar. 23, 1948.

Tire fabric, after impregnation with an aqueous dispersion of a composition of phenolic resin-forming reagents adhesive to rubber and to fabric, is subjected to dry steam at atmospheric pressure to reduce the water content of the fabric to 20%. TTD: 7-48

Fabric processing IV 5

Fabric finishing. Germans have few short cuts in preparation and creping. C. Norris Rabold. *Textile World 98*, No. 5, 122-23, 184, 186, 188, 190 (May, 1948).

Investigations of the German textile industry revealed few fabric finishing operations of value to this country. One possible useful development is a new type scutcher for opening cloth in rope form. The long traverse through the air from pot-eye to scroll rollers is avoided by the use of a shorter water-borne traverse. From the pot-eye, the cloth falls into a water tank, 7.75 yards long, and moves forward to the scroll rollers without tension or restraint. Few continuous processing operations were observed. Four types of creping operations were noted.
LCL TTD: 7-48

Buttonhole sewing. Thread-controller for sewing machines. Edw. P. Spaine (to The Singer Mfg. Co.). USP 2 437 052, Mar. 2, 1948.

This invention relates to buttonhole sewing machines, particularly to the means for manipulating and controlling the under thread of a 2-thread sewing machine. This thread-controlling device, properly located and timed with respect to the movable thread-carrying looper, modifies differentially the action of the looper on the thread, thereby maintaining a uniform tension on the looper thread during the entire stitch-forming cycle.
JHB TTD: 7-48

Calendering. Calendering and apparatus therefor. Geo. B. Nichols (to Seiberling Rubber Co.). USP 2 436 446, Feb. 24, 1948.

An improved method is described for calendering rubber and like plastics onto fabric. The rubber is sheeted out on one of the calender rolls and is trimmed along a line which parallels the edge of the fabric before the fabric and rubber are brought into contact. Two carriages carry knives and guides which follow the edge of the cloth in a standard 3-roll calender. The knives trim the rubber sheet to a desired width before the rubber is laminated with the fabric.
RJB TTD: 7-48

Cross stitching. Sewing machine and attachment therefor making cross-stitches. Chas. Seaman. USP 2 437 975, Mar. 16, 1948.

This invention relates to a sewing machine attachment to produce spaced cross-stitches for the purpose of securing materials together. The attachment actuates intermittently a device which engages the normally vertically reciprocating needle of a standard sewing ma-

chine, shifting or inclining and then releasing the needle in time to properly present the needle thread to the looper, to produce a V-shaped cross-stitch.
JHB TTD: 7-48

Drying. Drying webs. Lloyd Hornbostel (to Beloit Iron Works). USP 2 433 122, Dec. 23, 1947.

A material having absorbent properties, such as a felt, is used to absorb moisture from and apply drying heat to the outer surface of a paper sheet trained around the Yankee drier drum of a paper making machine. Means are provided to heat and dry the material prior to contact with the paper sheet while the sheet is trained around the drier drum.
CAC TTD: 7-48

Drying form. Hosiery drying form. Arthur S. Mann (to Paramount Textile Machinery Co.). USP 2 433 470, Dec. 30, 1947.

Hosiery drying forms, which are provided with detachable toe portions making them adjustable for use with articles of different sizes, have means for permitting the circulation of steam or other heating fluid through the detachable portions. All portions of the form are heated substantially to the same temperatures simultaneously, and the drying proceeds uniformly throughout the garment.
CAC TTD: 7-48

Fabric marker. Readily removable ticket. Milton Heimlich & Floyd H. Ogden. USP 2 433 949, Jan. 6, 1948.

An improved ticket assembly is described for attaching readily-removable tickets of a temporary nature to fabrics.
JHB TTD: 7-48

Holes made in fabrics. Slitting and punching attachment for piece-end sewing machines. Wilfred N. Hadley (to Parks & Woolson Machine Co.). USP 2 437 662, Mar. 9, 1948.

Piece-end sewing machines employed in mills and cloth finishing plants for sewing together the adjacent ends of 2 lengths of fabric to form a continuous web are provided with a mechanism for cutting or punching feeler holes in the web. These holes permit the actuation of detecting devices which suspend the shearing operation when the seam appears as the cloth is processed through a cloth shear.
JHB TTD: 7-48

Laminated fabric. Production of gasproof compound fabrics. Louis A. Lantz & Arthur Schofield (to Calico Printers' Assn, Ltd.). USP 2 438 176, Mar. 23, 1948.

A gasproof compound material is obtained by combining fabrics by means of an interlayer or interlayers consisting of a polyvinyl alcohol or water-soluble partial polyvinyl alcohol applied in aqueous solution to one or more of the fabrics in presence of an acid catalyst and so much of an aldehyde as is sufficient only to insolubilise the amount of polyvinyl acid present. Examples of water-soluble partial polyvinyl alcohols are polyvinyl ester-alcohols, polyvinyl acetal-alcohols and polyvinyl ester-acetal-alcohols. TTD: 7-48

Printing. Process of printing textiles with a powdered blanket. Wm. C. Ross (to Dewey & Almy Chemical Co.). USP 2 434 013, Jan. 6, 1948.

A method of using a waterproof material as a washblanket in printing textiles is described. This endless waterproof blanket is covered with a finely divided powder and passed through the printing machine as a backing for the fabric being printed. It is claimed that the various color pigments, which seep through the fabric being printed, or which run off of the selvage, are readily absorbed by the finely divided powder on the blanket. This blanket is then run through a washer where the powder is wet out and brushed off. Excess moisture is squeezed out of the blanket and more finely divided power is then applied. Since this powder readily absorbs moisture, it is claimed that it is not necessary to dry the endless blanket between each printing operation. Various powders such as talc, powdered mica, fuller's earth, starch, dextrines, benonite, hydrophylic gums, etc. may be used. Generally, satisfactory results are obtained by using between 1 and 30 pounds of powder for each 1000 yards of goods printed.
CCJ TTD: 7-48

Fabric applications IV 6

Protective clothing. Suits, exposure—Mark 1—quick donning for aviation personnel. U. S. Bur. of Aeronautics. (Havaer Specification 37517 (AER)). PB L 49 141-R, Mar. 1947. 10 pp. *Bibl. Sci. Ind. Reports 5*, 406 (May 2, 1947). Price: $1.00 (Microfilm or Photostat).

This specification supersedes M-680, Feb. 28, 1945 (PB 49 141). These exposure suits are intended for use as protective equipment for pilots and air crewmen flying at sea. Characteristics of type H, QN-F-10 balloon cloth for body, legs, soles, helmet and neck take fabric type HH cotton balloon cloth, neoprene coating, and other details are specified. Methods of sampling, inspection and tests and packaging, packing and marking for shipment are given. Other specifications forming a part of this specification are listed. TTD: 7-48

Thermoplastic finish. Preparation of multilayer fabrics. I. G. Farbenindustrie A. G. (Patent applica-

tion I 54 456, T. H. K. report). PB L 28 136, Feb. 1936. 8 pp. *Bibl. Sci. Ind. Reports 5*, 430 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Reference is made to German patent application I 52 052 IVe/8k. Fabrics made from threads or yarns finished with thermoplastic lacquers are combined with fabrics made of organic or inorganic fibers which may have been rendered shapable by finishing with thermoplastic lacquers. TTD: 7-48

Thermoplastic finish. Preparation of shapable textile products. I. G. Farbenindustrie A. G. (Patent application I 54 503, T. H. K. report). PB L 28 138, Mar. 1936. 5 pp. *Bibl. Sci. Ind. Reports 5*, 430 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Thermoplastic synthetic materials are used to make shapable textile products. TTD: 7-48

Laminated material. Protective clothing. Henry C. Bazett & Paul A. Siple. USP 2 433 834, Jan. 6, 1948.

This patent covers a new and improved laminated material for the construction of cold weather garments which is inexpensive to manufacture and light in weight, with little volume. The material offers an optimum of protection against dry or wet cold by having an outside layer of water repellent material, a thermal insulation layer, a layer impermeable to body vapor, and an inside protective non- chaffing layer.
WGM TTD: 7-48

Waterproof bag. Waterproof bag. Wm. J. Geimer (to Bemis Bros. Bag Co.). USP 2 435 743, Feb. 10, 1948.

A bag structure is claimed, comprising an outer flexible walled supporting member (preferably made of a suitable textile non- waterproof material) and an inner independent waterproof bag supported therein (preferably made of a thin flexible textile material having its walls thoroughly waterproof by coating or impregnating them with a suitable waterproofing agent, such as vinyl resin. An elongated web of a suitable porous material is so inserted in the inner liner so as to permit air entrained with the charge during the filling operation to be eliminated. The top of the inner liner is hermetically sealed by bonding the walls by application of heat and pressure.
WPU, jr. TTD: 7-48

CHEMICAL RAW MATERIALS V

Detergent. Washing and cleaning agents for textiles. I. G. Farbenindustrie A. G. (Patent application, 5 393a. T. H. K. report). Addition to patent application I 41 917. PB L 28 116, Nov. 1935. 5 pp. *Bibl. Sci. Ind. Reports 5*, 429 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.* (See also PB 28 117).

Halogen carboxylic acid esters are combined with tertiary amines or oxamines of aliphatic, aliphatic-aromatic, aromatic or hydroaromatic series. TTD: 7-48

Detergents. Detergents. I. G. Farbenindustrie A. G. (Patent application I 54 397, T. H. K. report). PB L 28 135, Feb. 1936. 3 pp. *Bibl. Sci. Ind. Reports* 5, 430 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

See Ger. P. 605 973. The polymers of alkyline oxides, especially those of ethylene oxide, are good washing agents if used in the presence of alkali. TTD: 7-48

Detergents. Detergents. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 122, Nov. 1935. 4 pp. *Bibl. Sci. Ind. Reports 5*, 429 (May 2, 1947). Price: $1.00 (Microfilm or or Photostat); *in German.*

The cleansing effect of polyglycol and polyglycerol derivatives may be increased by combining them with water-soluble aromatic, hydroaromatic, or aliphatic compounds containing ionic groups. Dirt is removed during the washing rather than during the rinsing process. A note in shorthand restricts the claim to polyglycol and polyglycerol ethers of aromatic and hydroaromatic hydroxyl compounds. TTD: 7-48

Dyes and textile aids. Process for preparing sulfone alkylcarboxylic acids. I. G. Farbenindustrie A. G. (Patent application I 55 253, T. H. K. report). PB L 63 028, 9 pp., June 1936. *Bibl. Sci. Ind. Reports 5*, 342 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The production of alkyl-aryl carboxy sulfonyl acids useful as intermediates for the preparation of dyes, textile aids, or tanning agents is described. TTD: 7-48

Finishing agent. Textile auxiliaries. I. G. Farbenindustrie A. G. (Patent application I 54 321. T. H. K. report). PB L 62 995, Feb. 1936. 12 pp. *Bibl. Sci. Ind. Reports 5*, 345 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat).

Textile auxiliaries are produced by condensation of aldehydes having 4 to 8 carbon atoms and ketones having 3 to 5 carbon atoms in the molecule in the presence of barium hydroxide to yield unsaturated ketones. These ketones are condensed in the presence of alcoholic alkali solution to yield long chain ketones with at least 3 olefin bonds, which subsequently are hydrogenated at 200 atm. by means of a nickel catalyst obtained by the

reduction of nickel oxide at 400°C, yielding quantitatively the corresponding saturated alcohols, which may be employed as such, or can be sulfonated. TTD: 7-48

Textile aid. Process for treatment of textiles. I. G. Farbenindustrie A. G. (Patent application 5 393a, T. H. K. report). Addition to patent application I 41 917. PB L 28 117, Nov. 1935. 4 pp. *Bibl. Sci. Ind. Reports 5,* 428 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The prior application deals with the addition of betaine derivatives to the treating baths. These derivatives are made from esters of the alpha-halogen fatty acids upon tertiary amines. Betaine derivatives may also be obtained from the reaction of halogen carboxylic acid esters (except for alpha-halogen fatty acid esters) with tertiary amines or oxamines of the aliphatic, aliphatic-aromatic, aromatic or hydroaromatic series.
TTD: 7-48

Textile aids. Preparation of isothiourea ethers of high molecular weight. Aceta GmbH. I. G. Farbenindustrie A. G. T. H. K. report. Patent application A 74 829 IVc/12o4. PB L 62 978, 6 pp. Dec. 1934. *Bibl. Sci. Ind. Reports 5,* 341 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat).

Valuable hydrophilic colloids are obtained when compounds of high molecular weight, containing inorganic or inorganic-organic ester groups, are reacted with thiourea or with derivatives of such compounds that contain at least 1 unstable hydrogen atom in the thiourea radical. The resulting products are used as textile aids.
TTD: 7-48

Textile aids. Preparation of secondary mixed aliphatic-cyclic alcohols. I. G. Farbenindustrie A. G. T. H. K. report. PB L 62 961, June, 1936. 6 pp. *Bibl. Sci. Ind. Reports 5,* 342 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Ketones which have at least one ring and in which the carboxyl group is not directly linked to a ring are reacted with hydrogen in the presence of hydrogenation catalysts. These alcohols serve as raw materials in the preparation of textile aids. TTD: 7-48

Textile aids. Preparation of valuable nitrogen-containing compounds. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 63 008, Mar. 1936. 6 pp. *Bibl. Sci. Ind. Reports 5,* 344 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

According to German patent application I 52961 IVa/12p, nitrogen-containing condensation products are obtained by reacting alkylene imines with alkylene oxides or compounds with similar reaction. According

to the new invention, the products thus obtained are treated with compounds which introduce groups which influence solubility, such as chlorides and esters of fatty acids, acid anhydrides, chlorides of sulfonic acids, etc. These substances are valuable as textile aids.
TTD: 7-48

Plastics and elastomers V 1

PLASTIC MATERIALS. MATERIE PLASTICHE. A. Querques. Ed. U. Hoepli. Milan, 1947; 188 pp.; price 600 L.

Reviewed in *La Chimica e L'Industria 30,* No. 2, 59-60 (Feb. 1948). TTD: 7-48

THE CHEMISTRY AND TECHNOLOGY OF PLASTICS. Raymond Nauth. Reinhold Publishing Co., New York, 1947; 522 pp.; price $9.50.

Reviewed in *J. Chem. Education 25,* No. 5, 300 (May, 1948). TTD: 7-48

PLASTICS. THE CHEMISTRY OF COMMERCIAL PLASTICS. Reginald Wakeman. Reinhold Publishing Corp., New York, 1947; 836 pp.; price $10.00.

Reviewed in *J. Chem. Education 25,* No. 1, 60 (Jan. 1948). TTD: 7-48

Surface-active compounds V 2

Detergency. Studies on detergent power. J. P. Sisley. *Am. Dyestuff Reptr. 36,* No. 17, 457-65 (Aug. 25, 1947).

The author enumerates the different factors on which detergent power depends, and studies the mechanism of the action of the products used. For treatment of textile fibers, utensils soiled by foods, the skin, greasy metals, etc., these factors would vary, and so would the methods of determining the detergent power. Methods of determination of detergent power, adopted to the different fibers to be treated and the type of soil to be removed, are reviewed for such textile processes as laundering, wool scouring, hair cleansing, silk degumming, cotton kiering and boiling-off of rayons. Most of the references are to European literature and practices.
WPU, jr. TTD: 7-48

Detergent. From lab to laundry. Roger Gentry. *Du Pont Mag. 42,* No. 2, 20-1 (Apr. 1948).

Sodium carboxymethyl cellulose functions as a laundry aid by holding dirt and oil in suspension, thus preventing it from settling back on clothes in the wash waters. TTD: 7-48

Detergents for wool. Analysis of sulfonated substances used in washing wool. M. Van Overbeke

Mlle. M. T. Raulin. *Bull. de L'Inst. Textile de France* No. 4, 137-42 (Dec. 1947).

Methods are given for the determination of moisture, fats, organic SO_3, sodium ions required to neutralize the SO_3, and the sulfate, carbonate, and bicarbonate of soda. TTD: 7-48

CHEMICAL PROCESSING VI

Cellulose. Mercerization of cellulose. I. A calorimetric study. Edouard Calvet. *Compt. rend. 226,* No. 16, 1275-6 (Apr. 19, 1948).

The fixation of NaOH on cellulose (cotton linters) was studied microcalorimetrically. From the amount of NaOH absorbed, the heat of mercerization was computed and found to be – 4 Cal. per gram of cellulose. TTD: 7-48

Cellulose. The role of water during absorption of sodium hydroxide by cellulose. Genevieve & Therese Petitpas. *Compt. rend. 226,* No. 8, 672-3 (Feb. 23, 1948).

The amount of NaOH absorbed by cellulose depends on the initial concentration of the solution, whereas the amount of water absorbed reached a maximum of approximately 14%. This appears to be due not to the formation of a definite compound, but to a modification of the ease of penetration of water and NaOH respectively into the crystalline and non-crystalline zones of the cellulose. TTD: 7-48

Delustering agent. Delustering of silk. I. G. Farbenindustrie A. G. (Patent application I 55 195, T. H. K. report). PB L 63 024, 4 pp., June 1936. *Bibl. Sci. Ind. Reports 5,* 343 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Silk or rayon is treated with highly stable aqueous dispersions or pigments which are developed by the use of aromatic sulfonic acids of high molecular weight or their salts, if necessary with the addition of water-soluble polyvinyl alkyl ethers. TTD: 7-48

Detergency. Practical aspects of wetting and detergency. E. S. Paice, Shell Chemicals, Ltd. *Chemistry & Industry* No. 16, 248 (Apr. 17, 1948).

A talk delivered before the Edinburgh section of the Royal Inst. of Soc. of Chemistry is summarized. A discussion is reported, including the theory of detergency, types of detergents, and their use in different industries.
LCL TTD: 7-48

Detergency. Symposium of London Section of Soc. of Chemical Industry. *Chemistry & Industry* No. 16, 250-52 (Apr. 17, 1948).

A number of papers on detergency outline the chemistry

involved, the physics of the problem, chemical structure and performance of detergents, the nature of synthetic detergents, and future trends, the use of detergents in laundries, laboratory evaluation, and the use of detergents as emulsifying agents. Some improvements in the use of detergents in laundries were claimed as a result of fundamental research. The bactericidal properties of certain detergents might be useful in wool washing, for example, where low temperatures must be used. A laboratory evaluation of synthetic detergents was considered impossible, full-scale practice being the only practicable way to evaluate such materials.
LCL TTD: 7-48

Detergent. Cleaning materials. I. G. Farbenindustrie A. G. (Patent application I 54 410. T. H. K. report). PB L 62 997, Feb. 1936. 5 pp. *Bibl. Sci. Ind. Reports 5,* 345 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat).

Soiled fabrics and other materials are pretreated with aliphatic, cycloaliphatic, or mixed aliphatic-aromatic compounds which contain at least 1 radical with 6 or more carbon atoms and at least one ether-, and/or hydroxyl group in the molecule. The material is then washed with the usual washing agents. TTD: 7-48

Detergent. Process for washing textiles in hard water. I. G. Farbenindustrie A. G. (Patent application I. 59 323, T. H. K. report). PB L 28 184, Oct. 1937. 3 pp. *Bibl. Sci. Ind. Reports 5,* 434 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Reference is made to German patent application I 50 762 IVc/8i, according to which hard water was used for neutral or alkaline washing solutions. Water-soluble salts of polymeric carboxylic acids or their derivatives, and water-soluble salts of phosphoric acid were added to these solutions. According to the new invention, the salts of the carboxylic acids or their derivatives are replaced by water-soluble salts of copolymers which contain carboxyl groups. TTD: 7-48

Detergents. The effect of sodium carboxymethylcellulose on synthetic detergent systems. Thos. H. & Clifton E. Smith, Wyandotte Chem. Corp. *J. Am. Oil Chemists' Soc. 25,* 44-51 (Feb. 1948); *Soap and Sanitary Chemicals 24,* No. 3, 37-9, 98 (Mar. 1940).

Formulations containing a Na alkyl-aryl sulfonate type of synthetic detergent, alkaline salts, and a type of Na carboxymethylcellulose developed for high detergency-promoting properties surpass high-quality fatty-acid soaps in both the removal of carbon soil and whiteness retention on cottons. Ternary diagrams are presented for systems containing Kreelon 4 D, a Na

alkyl aryl sulfonate type of detergent; Carbose, a compound detergent grade of Na carboxymethylcellulose; and each of 4 alkaline salts. From the diagrams, an infinite number of formulations can be selected visually, which would have any desired level of detergency within the range covered and which will meet other requirements, such as maximum foaming, high or low alkaline salt content, etc. Na carboxymethylcellulose promotes detergency in both hard water and diluted synthetic sea water, and has water-softening properties, being able to sequester or otherwise reduce the effect of hard water cations. A Na alkyl-aryl sulfonate type of detergent combined with the proper proportions of Na carboxymethylcellulose in water containing as much as 15 grains $CaCO_3$ equivalent per gal. exhibits detergent properties superior to those of the synthetic alone in distilled water. Methods for the evaluation of detergency are described means of which removal of carbon soil and whiteness retention as applied to the laundering of cotton fabrics may be independently measured.

GNR TTD: 7-48

Elastic. Elastic fabrics. Thos. G. Hawley, Jr. & Nicolai Timenes (to U. S. Rubber Co.). USP 2 434 111, Jan. 6, 1948.

The present patent is a continuance of patent 2 004 110. A process is described for the continuous manufacture of an elastic fabric combining a normally elastic textile material such as a knitted fabric or a bias-cut woven fabric with a rubber layer. While the fabric is stretched transversely on a tenter frame and is free to contract longitudinally, and elastic layer of material such as natural or synthetic rubber or rubber composition or rubber like material, is attached to and elastically combined with the fabric.

LCL TTD: 7-48

Finishing agent. Finishing and sizing of textiles. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 103, Sept .1935. 2 pp. *Bibl. Sci. Ind. Reports 5,* 428 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Water-soluble cellulose ethers containing sulfonic acid groups in the ether groups are used. TTD: 7-48

Finishing agents. Finishing of fibers or other materials of animal origin. I. G. Farbenindustrie A. G. (Patent application I. 55 094, T. H. K. report). PB L 28 153, May, 1936. 7 pp. *Bibl. Sci. Ind. Reports 5,* 432 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The fibrous materials are treated either with alpha-halogen ethers in the presence of tertiary amines (or polyamines) or with the addition products of tertiary amines (or polyamines) to the alpha-halogen ethers

in neutral solvents. The alpha-halogen ethers have the general formula $R—O—\underset{\displaystyle X}{\underset{|}{CH}}—R^1$; X stands for halogen; R and R^1 for alkyl, aralkyl, aryl or cycloalkyl groups; R^1 may also stand for hydrogen. During or after the impregnation, the fibrous materials are treated with other water repellents, such as alkylene oxides.

TTD: 7-48

Finishing agent. Finishing textiles. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 108, Oct. 1935. 5 pp. *Bibl. Sci. Ind. Reports 5,* 428 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Substances containing a quaternary nitrogen atom and one or more carboxyl groups bound with this nitrogen atom by a carbon chain and at least one aliphatic group with more than 6 carbon atoms are capable, even in low concentration, of imparting a remarkable smoothness and pliability to textiles. TTD: 7-48

Finishing agent. Process for finishing fibers and other materials of animal origin. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 096, June, 1935. 3 pp. *Bibl. Sci. Ind. Reports 5,* 427 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Isocyanates or isothiocyanates or their halides are used. TTD: 7-48

Finishing agent. Process for finishing fibers and other materials of animal origin. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 190, May, 1948. 4 pp. *Bibl. Sci. Ind. Reports 5,* 435 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Wool or silk are treated with isothiocyanates. TTD: 7-48

Finishing agents. Process for finishing natural or regenerated cellulose. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 152, May, 1936. 6 pp. *Bibl. Sci. Ind. Reports 5,* 432 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The celulose is treated with alpha-halogen ethers in the presence of tertiary amines or with addition products of tertiary amines to the alpha-halogen ethers in neutral solvents, aqueous solutions, or suspensions. TTD: 7-48

Finishing agent. Process for the finishing of synthetic fibers. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 63 013, Apr.

1936. 3 pp. *Bibl. Sci. Ind. Reports 5,* 343-4 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Synthetic fibers are treated with the condensation products obtained from the reaction of alkyl halides containing at least 2 halogen atoms on different carbon atoms, with ammonia or amines at elevated temperatures. TTD: 7-48

Finishing agent. Process for finishing of textiles. I. G. Farbenindustrie A. G. (Patent application I 54 612). T. H. K. report. PB L 63 007, Mar. 1936. 4 pp. *Bibl. Sci. Ind. Reports 5,* 344 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

This application claims the treatment of the textiles with water-soluble condensation products of urea-formaldehyde and starch in the presence of acids or substances which split off acids and which do not harm the fiber. TTD: 7-48

Finishing agent. Process for finishing of textiles, plastic materials, etc. I. G. Farbenindustrie A. G. (Patent application I 55 143, T. H. K. report.) PB L 63 020. 3 pp. May, 1936. *Bibl. Sci. Ind. Reports 5,* 343 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The materials are treated with polymerization products of ethylenimine. TTD: 7-48

Finishing agent. Process for finishing of textile fibers. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 212, Mar. 1937. 2 pp. *Bibl Sci. Ind. Reports 5,* 437 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Fibers are treated with acidic esters of aliphatic, cycloaliphatic, or mixed aliphaticaromatic compound with more than 8 C atoms in the molecule, or with the salts of these esters. In case the organic compounds contain oxygen, the single carbon atoms should not be linked to the oxygen with more than 2 valences. TTD: 7-48

Finishing agent. Process for finishing of textile. I. G. Farbenindustrie A. G. (Patent application I 54 980, T. H. K. report). PB L 28 150, May, 1936. 3 pp. *Bibl. Sci. Ind. Reports 5,* 431-2 (May 2, 1947). Price: $1.00 (Microfilm or Photostat). (Addition to patent application I. 53 402); *in German.*

For prior application see PB 28 111. A method of introducing into the materials being treated free hydroxyl, mercapto or amino groups is described. If such groups

are already present, they are changed to alkyl ether, alkyl thioether, or acylamino groups. TTD: 7-48

Finishing agent. Process for finishing vegetable or artificial fibers or vegetable or artificial cellulose material. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 189, May, 1938. 5 pp. *Bibl Sci. Ind. Reports 5,* 435 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The material is treated with isothiocyanates. Rayon is mentioned as being treated in this manner. TTD: 7-48

Finishing agent. Process for improving the properties of vegetable, animal, or synthetic fibrous materials. I. G. Farbenindustrie A. G. (Patent application I 58 815, T. H. K. report). PB L 28 261, Aug. 1937. 8 pp. *Bibl. Sci. Ind. Reports 5,* 440 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Compounds which contain phenolic hydroxyl groups and with substances which contain hydroxyalkylether groups are used for finishing textile fabrics and for aiding in dyeing hides and leather. TTD: 7-48

Finishing agents. Process for treating natural or regenerated cellulose. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 179, Apr. 1937. 3 pp. *Bibl. Sci. Ind. Reports 5,* 434 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.* (Addition to German patent 613 735).

According to the prior patent, cellulose is treated with alpha-halogen ethers in the presence of tertiary amines at normal or increased temperatures. According to the new invention, the material is also subjected to the action of synthetic aldehyde resins, aldehydes, or substances which give off aldehydes. TTD: 7-48

Finishing fibrous materials. Impregnating, stiffening or agglutinating of fiber materials. I. G. Farbenindustrie A. G. (Patent application I 54 668, T. H. K. report). PB L 28 141, Mar. 1936. 4 pp. *Bibl. Sci. Ind. Reports 5,* 431 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Salts of fatty acids, fatty oils, or hydrocarbons of high molecular weight are added as water repellent agents to the aqueous emulsions of the film-forming substances. The procedure is important in finishing ladies hats made of straw, regenerated cellulose, etc. TTD: 7-48

Mercerizing. Process for improving mercerizing solutions. I. G. Farbenindustrie A. G. Patent application I 55 252, T. H. K. report. PB L 63 027,

3 pp., June 1936. *Bibl. Sci. Ind. Reports 5,* 343 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Mercerizing solutions consisting of (1) alkylolamines with at least 1 group which has more than 2 C atoms and (2) glycols, preferably those with more than 3 C atoms in the molecule, have an excellent wetting effect on cotton. TTD: 7-48

Proofing against solvents. Preparation of solvent-fast materials. I. G. Farbenindustrie A. G. (Patent application 1 52 566. T. H. K. report). PB L 28 094, June, 1935. 5 pp. *Bibl. Sci. Ind. Reports 5,* 427 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Textiles are impregnated with a polymeric carboxylic acid to render them more impenetrable against more or less volatile organic solvents. The impregnated materials were afterwards heated or treated with salts of polyvalent metals with basic substances, or with polyvalent alcohols. TTD: 7-48

Pretreatment of fibers. Finishing of textile fibers. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 111, Oct. 1935. 3 pp. *Bibl. Sci. Ind. Reports 5,* 428 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.* (See PB 28 150 for indication that this application has the number I 53 402 IVc/8k).

The fiber is pretreated with alkylene oxides for cyclic ethers. TTD: 7-48

Softening agent. Process for treating fibrous materials. I. G. Farbenindustrie A. G. (Patent aplication, T. H. K. report). PB L 28 214, Mar. 1937, 7 pp. *Bibl. Sci. Ind. Reports 5,* 437 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

A formula is given for substances which improve the quality of textile fabrics by making them soft and pliable. TTD: 7-48

Stiffening fabrics. Process for producing semistiff textiles. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 187, Dec. 1937. 3 pp. *Bibl. Sci. Ind. Reports 5,* 434 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Viscose or copper ammonium rayon is treated with soda solution (about 12-30°Bé) and then molded with a fabric which, if necessary, has been treated in the same way. Urea or thiourea can be added to the soda solution. TTD: 7-48

Surface active agents. Electrolyte builders for surface active agents. J. C. Harris, Monsanto Chemical Co. *Am. Dyestuff Reptr. 37,* No. 8, 266-70 (Apr. 19, 1948).

The theory of builders in detergents, the micellar structure of molecules of soaps and other surface-active agents in water solution, types of surface active agents, and the effect of added electrolytes upon the amount of surface-active agent required to produce critical changes in surface and interfacial tension, in canvas-disk wetting time, in Draves wetting tests, in detergent power, and in production of lather are discussed. Addition of electrolytes to *anionic* surface-active agents generally results in a significant lowering of the quantity of agent required to accomplish a certain result; but their addition to *cationic* surface-active agents usually inactivates the agent. The valence of the added builder ion has a marked effect on the physicochemical properties of the anionic agents.
WPU, jr. TTD: 7-48

Textile softener. Softening agents. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 191, June, 1938. 4 pp. *Bibl. Sci. Ind. Reports 5,* 435 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Derivatives of urea containing at least one substituent with at least 4 C atoms are used. They may be sulfonated. Urea derivatives specified are those of guanidine or thiourea. TTD: 7-48

Treating dyed material. New process for increasing the resistance of dyes to the action of chlorine. A. Landolt. *Textil-Rundschau 11,* No. 6, 201-4 (June, 1947); *Chimie et Industrie 59,* No. 4, 382 (Apr. 1948).

Treatment of dyes on cellulose fibers with resins of the melamine type considerably increases their resistance to the action of chlorine. Dyes on wool fabrics are usually not affected by chlorine. TTD: 7-48

Treating textiles. Impregnation of fibrous materials. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 216, Apr. 1937. 2 pp. *Bibl. Sci. Ind. Reports 5,* 437 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Hydroxides of trivalent metals colloidally dispersed in water are prepared according to German patent application I. 47 587 IVb/12g and used for impregnating textiles, wood, paper, etc. These hydroxides are mixed with emulsions of petroleum, wax, oil, of paraffin to form stable emulsions. TTD: 7-48

Washing. Process for washing and cleaning. I. G. Farbenindustrie A. G. (Patent application I 52 537). T. H. K. report. PB L 28 093, June, 1935. 5 pp. *Bibl. Sci. Ind. Reports 5,* 427 (May 2,

1947). Price: $1.00 (Microfilm or Photostat); *in German.*

For patent apparently granted on the basis of this application, see Ger. P. 712 372, abstracted in this bibliography, v. 3, p. 521. TTD: 7-48

Washing wool. Resistance of wool to washing. The action of chloro-methyl ethers on wool. W. Kirst. *Melliand-Textilber. 28,* No. 9, 314-16 (Sept. 1947); *Chimie et Industrie 59,* No. 4, 382 (Apr. 1948).

Wool treated with chloro-methyl ethers is much less soluble in sodium hydroxide, loses little of its strength after boiling with soap or detergents, and does not felt when washed. Continued boiling of the treated material with soap produces a yellowish appearance. TTD: 7-48

Water-resistant facing. Floor and wall covering. Herbert R. Woerner (to Armstrong Cork Co.). USP 2 434 974, Jan. 27, 1948.

A method of manufacture for floor and wall covering is described which involves a water-resistant facing of siccative oil composition disposed on a fibrous foundation or backing. To prevent bleeding or staining under normal conditions of manufacture, the fibrous base or foundation is rendered water-resistant and is strengthened by the use of a nonbleeding impregnant containing tall oil. The use of the tall oil is the basis for the invention.
LCL TTD: 7-48

COLOR VII

Color. Light fastness. Preliminary steps in the development of an accelerated aging test to light. Dorothy S. Lyle & Pauline B. Mack, Ellen H. Richards Inst., F. Bonnet, A. R. Wachter & C. W. Rice, Am. Viscose Corp. *Am. Dyestuff Reptr. 37,* No. 8, 251-6, 282 (Apr. 19, 1948).

Cabinets were built and used to determine light fastness under controlled conditions: (1) 100°F and 30 ± 8% relative humidity; (2) 140-150°F and 45 ± 15% relative humidity. Atmospheres of air and of oxygen were used; with the oxygen, tests were run with and without light. The relative merits of the respective conditions as a part of the development of a controlled, accelerated test for light fading were judged by observations on fading and on wet bursting strength of the fabric tested. The lower temperature and humidity gave only fading and color losses, with either air or oxygen. The higher temperature and humidity gave markedly accelerated losses; 50 hours of such exposure in the cabinets with oxygen gave fading equal to that from 300 hours of

direct exposure (no cabinet used) with the same Fade-Ometer, or from six months of window exposure to daylight through glass, at atmospheric conditions.
WPU, jr. TTD: 7-48

Finishing agent. Process for preparing valuable esters. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 220, Apr. 1937, 3 pp. *Bibl. Sci. Ind. Reports 5,* 437 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Polycarboxylic acids with more than 2 carboxyl groups in the molecule are esterified with at least one mol of an organic hydroxyl compound containing 8 or more C atoms, and if necessary, with other organic hydroxyl compounds. The esters thus obtained possess properties which make them suitable for the finishing of textiles. TTD: 7-48

Bleaching VII 1

Detergent. Washing and bleaching agents. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 149, May, 1936. 5 pp. *Bibl. Sci. Ind. Reports 5,* 431 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

This is a combination of (1) detergents which are resistant to hard water and metal salts and (2) organic compounds which have one or more chlorine atoms in the molecule. TTD: 7-48

Peroxide bleaching. Bleaching by the mile. Anon. *Du Pont Mag. 42,* No. 1, 2-4 (Feb. 1948).

The Du Pont continuous peroxide bleaching system for knitted goods consists of an arrangement of washers, a saturator, and a J-Box. A speed of 160 yards a minute can be attained. The bleaching agent is a dilute solution of hydrogen peroxide. TTD: 7-48

Bleaching. Bleaching cellulose textile fibers. Thos. C. Whitner (to Chemical Laboratories, Inc.). USP 2 438 100, Mar. 16, 1948.

Cellulose textile fibers are bleached by use of an aqueous solution of an alkylolamine and then treated with ozone or ozonized air. After yarn or woven fabrics are cleaned or scoured, they are soaked in the aqueous solution of alkylolamine and then pressed or hydro-extracted to remove any excess liquid. The damp fibers are then treated with ozone. The yarn or woven fabric can then be washed to remove any absorbed solution of alkylolamine. This bleaching process will increase the adsorptive properties of the fibers as indicated by a greater affinity for dyes. Five examples are given to show various methods of applying the bleaching treatment to textiles. Concentrations of solutions of

alkylolamines can be varied from a fraction of a per cent up to 40%. The concentration of ozone and duration of treatment by it are governed by the degree of decoloration desired. This process of bleaching may be employed in combination with the more conventional methods of bleaching.

CCJ TTD: 7-48

Dyeing VII 2

Corrosiveness of chlorite. Tests of the resistance to corrosion of different materials towards solutions of sodium chlorite used in the textile industry. J. Maybeck, N. Ivanow, Mlle. A. Loebenstein, Laboratory of the Textile Research Center of Mulhouse. *Bull. de L'Institut Textile de France* No. 5 (Mar. 1948).

The resistance of materials of construction to chlorite has not been studied extensively. A number of stainless steels, now available in France, were tested in 5% sodium chlorite solution at pH 4 and at 80°C. None of these was found to be sufficiently resistant. It appears that steels containing molybdenum are the most resistant. TTD: 7-48

Crocking. Wool dyeing process has critical crock point. H. E. Millson, W. H. Watkins & G. L. Royer, American Cyanamic Co. *Textile World 98,* No. 5, 127, 238, 242 (May, 1948).

A correlation has been found between the critical point of dyeing and the critical point of crocking. This varies from dye to dye and with changes in procedure. Crocking occurs because of improper solution of dye, improper pH control, and improper scouring of the fibers. The constitution of the dyes and the way in which they combine with the fiber will also determine the degree of fastness.

LCL TTD: 7-48

Dyed textiles. Improving the fastness of dyed textiles. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 109, Oct. 1935. 5 pp. *Bibl. Sci. Ind. Reports 5,* 428 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

This application describes a process for improving the fastness of dyed textiles, particularly those treated with so-called substantive dyestuffs. The colored fabrics are posttreated with compounds containing a quaternary nitrogen atom and one or more carboxyl groups linked to this nitrogen atom by a carbon chain. TTD: 7-48

Dyeing. Applications of spectrophotometry in a textile plant. Frederick T. Simon. *Anal. Chemistry 20,* No. 7, 387 (Apr. 1948). Abstract of a paper

presented before the meeting of the Optical Soc. of Am., New York, Mar. 4-6, 1948.

Spectrophotometric technique for measuring dyed fabrics and solutions of the dyes themselves are described. Some phenomena of the dyeing process can be studied, using the spectrophotometer for measurement of the dye baths while the dyeing is proceeding. TTD: 7-48

Dyeing. Process for dyeing cellulose ethers and esters. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 211, Mar. 1937, 5 pp. *Bibl. Sci. Ind. Reports 5,* 437 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Colorings produced by the use of water-soluble acetate rayon dyes are subsequently treated basic organic compounds. Such basic compounds can also be added to the dye bath. TTD: 7-48

Dyeing. Process for dyeing cellulose fibers and fiber mixtures of cellulose- and protein-containing textile fibers. I. G. Farbenindustrie A. G. (Patent application I 56 289, T. H. K. report). PB L 28 168, Nov. 1936. 4 pp. *Bibl. Sci. Ind. Reports 5,* 433 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

These materials can be dyed with substantive dyes if urea, or its derivatives, or their salts, or substances capable of forming them, are added to the dye bath. TTD: 7-48

Dyeing. Process for the dyeing of animal fibers. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 210, Mar. 1937, 7 pp. *Bibl. Sci. Ind. Reports 5,* 436 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

It is claimed that the fibers can be dyed efficiently at a concentration of acid below the usual concentration, provided the material is preheated with chemicals which are soluble or emulsificable with water and which answer the following requirements: they react with dyestuffs; they are derived from tri- or pentavalent nitrogen; they include at least one aliphatic or aromatic groups with 6 or more carbon atoms and do not contain sulfo groups and polyglycol ether groups with more than 3 glycol radicals. The reaction is assisted by the addition of protective colloids in the form of corresponding dispersing agents. The resulting chemicals are suited particularly for dyeing with complex metal compounds of acidic dyes on wool. TTD: 7-48

Dyeing. Replica studies of dyed nylon. F. A. Hamm. *Anal. Chemistry 20,* No. 1, 91 (Jan. 1948). Abstract of a paper presented before the meeting of

the Electron Soc. of Am. at Philadelphia, Dec. 11-13, 1947).

This paper describes a technique for preparing replicas of nylon dyeings containing crystals ranging from about 100 to 5000 Å long. This technique has been successfully used on nylon dyed with vat dyes such as Indanthrene Golden Yellow IGK, Indanthrene Brilliant Pink IRA. Similar investigations of other fibers are being carried out. TTD: 7-48

Dyeing Aid. Dyeing animal fibers. I. G. Farbenindustrie A. G. (Patent application I 54 418). T. H. K. report. PB L 62 998, Feb. 1933. 10 pp. *Bibl. Sci. Ind. Reports 5,* 345 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat).

The animal fibers are pretreated with water-soluble compounds derived from tetravalents sulfur and which contain at least 1 aromatic or aliphatic radical of 6 or more carbon atoms, but which do not contain sulfonic groups, and which are adapted to react with the dye to be used. This pretreatment makes it possible to dye at temperatures below the boiling point or with smaller quantities of acid than usual. Sixteen examples are given. TTD: 7-48

Dyeing aid. Dyeing animal fibers. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 62 999, Feb. 1933. 12 pp. *Bibl. Sci. Ind. Reports 5,* 345 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat).

This application states that the fibers may be treated with compounds derived from pentavalent phosphorus instead of tetravalent sulfur. Sixteen working examples are given. TTD: 7-48

Dyeing aid. Dyeing synthetic high polymers. Aceta GmbH. (Patent application A 75 017 IVa/8m). I. G. Farbenindustrie, T. H. K. report. PB L 62 979, 14 pp., Jan. 1935. *Bibl. Sci. Ind. Reports 5,* 341 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat).

Synthetic products of organophilic higher polymers containing acidic groups bound to radicals of high molecular weight, especially rayon, are dyed advantageously with water-soluble dyes containing strongly basic groups. These groups need not be essential to the formation of the color; in other words, may be nonauxochromous or nonchromophorus. The various methods of preparing the corresponding dyes was described in detail. (Document will not photograph well). TTD: 7-48

Dyeing aid. Process for the dyeing of formed structures, especially fibrous materials. Aceta GmbH. I. G. Farbenindustrie. T. H. K. report. (Patent application A 75 366 IVa/8m). PB L 62 983, Feb. 1935. 21 pp. *Bibl. Sci. Ind. Reports 5,* 340 (Apr. 25, 1947). Price: $1.00 (Microfilm) $2.00 (Photostat).

This process is especially applicable to synthetic or chemically modified natural fibers which contain groups combined with relatively high molecular weight radicals and which become strongly basic, or the basic character is substantially increased by substitution, hydrolysis, reduction, or addition of alkylation agents. The agents causing the conversion of these groups to give them a basic character are applied to the fiber simultaneously with dyes, dye derivatives, or dye components. Water-insoluble dispersed dyes are used. If the fibers contain exchangeable organic or inorganic ester groups, they are treated with such tertiary amines or amine derivatives as react readily with alkylation agents, with the formation of quaternary salts. (This document will not photograph well). TTD: 7-48

Dyeing aid. Process for the modification of organophilic high polymers. Aceta GmbH. I. G. Farbenindustrie. T. H. K. report. PB L 62 984, Nov. 1935. 28 pp. *Bibl. Sci. Ind. Reports 5,* 340 (Apr. 25, 1947). Price: $1.00 (Microfilm) $2.00 (Photostat).

A process is described for the modification of organophilic natural or synthetic high polymers having hydrolyzable groups, especially the affinity of such polymers to dyeing. The polymers, after being shaped, are treated with alkylene oxides, e. g., propylene oxide, in the presence of alkali-reacting substances. These alkali-reacting substances are formed by the reaction of alkylene oxides on salts of acids capable of reacting with alkylene oxides, i. e., the salts of organic or alkali-reacting inorganic bases with halogen acids or thiocyanic acid. TTD: 7-48

Dyeing methods. Dye application methods on stock and yarn analyzed. J. H. Hennessey, Gen. Dyestuff Corp. *Textile World 98,* No. 6, 131, 192, 194 (June, 1948).

Generally speaking improvements in dyeing have been due to change in method of application in vat dyeing rather than to alteration of equipment. One of the latest ranges developed permits the dyeing operation to be conducted in one run. In package dyeing the optimum rate of flow of the dye liquor has been determined to be 3-3½ gal/min. per 1-lb. package. In dyeing packages, which contain more than one pound of yarn, considerable attention must be paid to the type of winding as well as to the density of the package. In skein dyeing, the Buhlmann type of machine and Smith-Drum "Cascade" machine have proved effective.
LCL TTD: 7-48

Dyeing oiled cotton. Production of mordant dyeings on cotton prepared with oil. I. G. Farbenindustrie A. G. Patent application I 55 290, T. H. K. report. PB L 62 959, 4 pp., June 1936. *Bibl. Sci. Ind. Reports 5,* 342 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Emulsion oils, made from neutral emulsion agents, such as olive oil, castor oil, and peanut oil are used. TTD: 7-48

Improved dyeing. Improvement of the fastness of dyes on nitrogen-containing fabrics. Aceta GmbH. I. G. Farbenindustrie. T. H. K. report. (Patent application A 75 134 IVa/8m). PB L 62 982, Jan. 1935. 6pp. *Bibl. Sci. Ind. Reports 5,* 341 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat).

The dyed fabrics are treated alkylene oxides or with compounds capable of forming alkylene oxides in the absence of other alkylating agents to improve their water-fastness and wash-fastness. TTD: 7-48

Pretreatment. Dyeing blends containing vegetable and artificial fibers. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 62 994, Feb. 1936. 4 pp. *Bibl. Sci. Ind. Reports 5,* 345 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat).

Uniformity of color is obtained by a pretreatment of a mixed fabric with organic compounds containing pentavalent phosphorus and at least 1 aliphatic radical of high molecular weight in the molecule, but which do not contain a sulfonic group, i. e., triethyl-stearyl-phosphonium bromide. TTD: 7-48

Pretreatment for dyeing. Increasing the reactivity of natural or synthetic formed products. Aceta GmbH. I. G. Farbenindustrie. T. H. K. report. Patent application A 74 117 IVa/8m. PB L 62 970, Sept. 1934. 6 pp. *Bibl. Sci. Ind. Reports 5,* 341 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Fibers made from protein or derivatives of protein, or transformation products may be made more reactive, especially toward acid reagents, by treating with alkylene oxides or their derivatives, analogs, or isologs, while preserving their structure. Such treatment is of especial value in preparing these products for dyeing. TTD: 7-48

Testing dyes. An application of spectrophotometry in the textile industry: Testing dyestuff shipments. E. P. Mersereau & J. L. Barach. *Anal. Chemistry 20,* No. 4, 387 (Apr. 1948). Abstract of a paper

presented at the meeting of the Optical Soc. of Am., New York, Mar. 4-6, 1948.

Spectrophotometric measurements of the absorption of dye solutions for standardization and testing are more accurate and precise than the visual measurements and save as much as half an hour per test. TTD: 7-48

Wool dyeing. Theory and practice in wool dyeing. F. L. Goodall (to Geigy Co.). *Am. Dyestuff Reptr. 36,* No. 14, 380-85 (July 14, 1947).

The acid titration curve of wool shows why the rate of dyeing is a function of pH and quantity of acid. The retarding effect of sodium sulfate is caused mainly by competition of the sulfate anions of the salt with the dye anions for the available basis groups in the wool. Heat helps to swell wool fibers and to break down colloidal dye aggregates to molecular size, thus permitting the dye molecules to penetrate the fiber easily; sodium sulfate has opposite effects. Dyeing with crystalloidal and colloidal dyes is compared and contrasted, and reasons are given as to why low temperatures give a poor quality in wool dyeing. Practical methods for applying both crystalloidal and colloidal wool dyes are suggested.
WPU, jr. TTD: 7-48

Wool dyeing. The tippy dyeing of wool and its control. New York Section of AATCC. Anon. *Am. Dyestuff Reptr. 36,* No. 18, 486-506 (Sept. 8, 1947).

The validity of the statement that colloidal dyestuffs dye tippy wool fibers less level than molecular types is questioned, and it is shown that the property of level dyeing on tippy wool is not necessarily related to the degree of aggregation of the dye. Coloristic evidence is presented to confirm the existence of rupture in the sulfur linkage in the wool epidermis damaged by sunlight. It is shown also that relinking of the cysteine side chains does not prevent tippy dyeing. A table is given of the properties of most acid and chrome dyes currently in use, with reference to the dyeing of tippy wools and mohair. This table, based on more than 4,500 dyeings, has been prepared for practical use in the woolen industry. A study of leveling agents based on both laboratory dyeings and mill runs has demonstrated that tippiness can be overcome by the use of proper leveling agents. A selection of color plates, chosen from some 200 Kodachrome slides taken in the course of this investigation, are given to illustrate the results obtained.
WPU, jr. TTD: 7-48

Dyeing wool. Chrome dyeing method. Neil M. Mackenzie & Max E. Nestler (to Am. Cyanamid Co.). USP 2 434 173, Jan. 6, 1948.

Improved brightness, fullness, and reproducibility on

wool of chromium complexes of azo dyes containing one amino group ortho to the azo linkage, is effected by dyeing in the presence of a small amount of a soluble trivalent chromium salt.
MC TTD: 7-48

Package holder. Hollow wound package holder for drying apparatus. Michael W. Reno & Jas. E. Dougherty. USP 2 431 280, Nov. 18, 1947.

An improved apparatus is described which eliminates off-shading in pressure-dyed yarns wound in cakes by forcing the dyestuff axially or diagonally as well as radially through the cake.
JHB TTD: 7-48

Tendering. Tendering properties of textiles dyed with orange vat dyestuffs by treatment with certain nitrogenous resins. Albert Landolt (to Soc. of Chemical Industry in Basle). USP 2 435 591, Feb. 10, 1948.

Tendering of textiles dyed with certain vat dyes, by light, is inhibited by applying 2 to 10% of a water soluble condensate prepared from formaldehyde and a compound such as dicyanodiamide, and by drying the textile at a pH lower than 7. Improved light fastness is also obtained.
MC TTD: 7-48

Printing VII 3

Dyeing and printing. Process for preparing dye baths, dyes, and printing and discharge printing pastes. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 242, June, 1937. 9 pp. *Bibl. Sci. Ind. Reports 5,* 439 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Dye baths, dyes, and printing and discharge printing pastes are improved by the addition of polyhydric aliphatic alcohols with at least 4 C atoms, which contain fewer hydroxyl groups than C atoms. TTD: 7-48

Printing. Process for printing with vat dyes. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 151, May, 1936. 3 pp. *Bibl. Sci. Ind. Reports 5,* 432 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Condensates of urea or its derivatives and the reaction products of alkylene oxides with ammonia, or such organic compounds as contain hydroxyl, carboxyl, amino or hydroxyamino groups are added to anthraquinone dyes. TTD: 7-48

Printing paste. Printing dyes. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 088, May, 1935. 4 pp. *Bibl. Sci. Ind. Reports 5,* 427 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

A paste which can be added to a coloring paste and which will not stick to the printing mill or otherwise complicate the printing process includes sodium pyrophosphate and the condensation product of oleic acid chloride with sarcosine. TTD: 7-48

Printing textiles. Process for textile printing with indigoid vat dyes. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 192, June, 1938. 3 pp. *Bibl. Sci. Ind. Reports 5,* 435 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Printing, discharge printing, and resist printing pastes are used which contain nitrogenous derivatives of monosaccharides which are substituted with an aliphatic or aliphatic-aromatic group on the nitrogen atom.
TTD: 7-48

Textile printing. Printing of vat dyes on fabrics made of animal fibers or containing animal fibers. I. G. Farbenindustrie A. G. (Patent application I 54 305, T. H. K. report). PB L 28 128, Feb. 1936. 4 pp. *Bibl. Sci. Ind. Reports 5,* 430 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Amines of the fatty series, containing a minimum of 2 N atoms are added to the vat dyes. TTD: 7-48

Measurement and defects VII 4

Fading dyes. Degradation by light of dyes on delustered acetate rayon. Effect of bleaching on the degradation. M. le Chanoine Pinte & Mlle. Goujet, Research Center of the Silk and Textile industries, Lyon. *Bull. de L'Institut Textile de France* No. 5, 11-24 (Mar. 1948).

Delustered acetate rayon was bleached, dyed, exposed to sunlight, and the degradation of the color measured in a photocolorimeter. It was found that the effect of light was greater for the delustered rayon than for lustrous rayon, probably because the pigment used for delustering catalyses the fading of the dye. When the delustered rayon was bleached by several well-known bleaching processes prior to dyeing, maximum fading of the color was observed when hypochlorite was used at pH 7 and pH 4. The fading is of the same order of magnitude for delustered acetates bleached with chlorite hydrogen peroxide, and perborate. TTD: 7-48

PROOFING VIII

Coating textiles. Process for preparing stiff fabrics resistant to washing. I. G. Farbenindustrie A. G.

(Patent application I 54 896, T. H. K. report). PB L 28146, Apr. 1946. 5 pp. *Bibl. Sci. Ind. Reports 5,* 431 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Polymeric vinyl alkyl ketones have been found highly suitable for impregnating or coating textiles to make them stiff and resistant to washing. Textiles heated with these substances take on any shape in a hot state, for example, during ironing and pressing. TTD: 7-48

Fire proofing. Process for fireproofing fibrous mamaterial. I. G. Farbenindustrie A. G. (Patent application I 55 020). T. H. K. report. PB L 63 016, May, 1936. 2 pp. *Bibl. Sci. Ind. Reports 5,* 343 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Fibrous materials are treated with aqueous solutions of ammonium salts of phosphoric acid with the addition of water-soluble salts of organic acids of low molecular weight, or carbonates. TTD: 7-48

Fungicides. Mildewproofing compounds. S. S. Block. *Chem. Industries 62,* No. 2, 226-31 (Feb. 1948).

The problem of mildew as it affects materials other than foodstuffs is outlined. Although this is not a new problem, experience in the recent war has stimulated interest in this field. These organisms may now be checked by means of physical controls such as temperature control and reduction of available moisture. Although physical methods of control can be used satisfactorily, for most purposes, chemical fungicides must be used. Fungicides are discussed by type under the headings: copper, mercurials, phenolics, chlorinated phenols, and quaternaries. However, synthetic fibers like nylon, saran, and acetate rayons are resistant to mildew and do not require fungicidal treatment. Materials which require treatment include cellulose fibers, and leather goods. Silk and wool are not deteriorated but are spotted by surface molds. Mold growth impairs electrical equipment when it develops on insulation material. The author concludes by pointing out the existence of a large potential market for fungicidal products.

EA TTD: 7-48

Moth proofing. Process for protecting products made of protein substances or their conversion products against microorganisms. Aceta GmbH. (Patent application A 75 135 IVc/8k). I. G. Farbenindustrie, T. H. K. report. PB L 62 981, 9 pp. Jan. 1935. *Bibl. Sci. Ind. Reports 5,* 340-1 (Apr. 25, 1947). Price: $1.00 (Microfilm or Photostat).

Materials such as wool, natural silk, furs, leather, and feathers are mothproofed by treating with gaseous al-

kylene oxides, their derivatives or analogues, e. g., epihalogen hydrin, alkylated ethylene imines, or their quaternary salts. Bleaching agents for fiber protecting agents should also be present. TTD: 7-48

Preservative. Bacterial degradation of sodium carboxymethylcellulose and methylethyl cellulose. G. G. Freeman, A. J. Baillie & C. A. MacInnes. *Chemistry & Industry* No. 18, 279-82 (May 1, 1948).

Because certain mold growths have been noted in aqueous solutions of sodium carboxymethylcellulose and methylethyl cellulose in storage, an extended study was made of these solutions, using different types of viscosity measurements and bacterial sources. The effects of certain bacteriostatic agents were studied and the solutions were found to lose considerable viscosity when exposed to certain types of bacteria. However, when used as starch substitutes and detergent assistants in laundering, solutions of these materials have been shown to be fairly stable for a few weeks' storage at room temperature without additional bacteriostats. For longer storage, the use of growth inhibitors is recommended.

LCL TTD: 7-48

Protecting animal fibers. Mothproofing. R. Burgess. *Chemistry & Industry* No. 18, 284-5 (May 1, 1948). (Report on paper delivered before Yorkshire Section of the Soc. of Chemical Industry).

Satisfactory mothproofing agents must be relatively cheap, nontoxic to humans, permanent, compatible with commercial processing, fast to light, washing, dry-cleaning, etc. Of the substances now used, Eulan CN and Mitin FF, seem to be the best so far developed. The paper is reported as giving details of the structure and properties of Mitin FF and Eulan CN, but these properties are not reported in Chemistry & Industry. These materials, with the widely used DDT, offer the best means of protecting all kinds of material composed of animal fibers.

LCL TTD: 7-48

Testing fungicides. Testing of fungicidal materials against pathogenic fungi. Louis C. Barail, U. S. Testing Co., Inc. *Am. Dyestuff Reptr. 37,* No. 8, 257-8, 281-2 (Apr. 19, 1948).

The author notes that there is a swing to the use of pathogenic organisms in testing fungicidal materials, especially organisms causing dermatophytosis. The object of these tests is not to determine whether the fungicide treatment will prevent the deterioration of the treated material, but whether the fungicide will inhibit

the growth of pathogenic organisms. The treated materials are usually articles of clothing, but even paint is being tested in this manner. The author used 9 species of *Trichopyton*, 4 species of *Microsporum*, 2 species of *Achorion*, and 3 other organisms. The following 5 are used more frequently than others: *T. gypseum, T. purpureum, T. sulfureum, M. Audouini,* and *Epidermophyton inguinale*. These organisms are used either individually or preferably in mixed cultures. More than 300 fungicides have been tested for toxicity, skin irritation, and sensitization. Of all these, only a few long-chain phenyl mercuric derivatives have proved to be satisfactory.

EA TTD: 7-48

Stiffening agent. Process for preparing stiff textiles which are resistant to washing. I. G. Farbenindustrie A. G. (Patent application I 55 436, T. H. K. report). PB L 28 161, July, 1936. 3 pp. *Bibl. Sci. Ind. Reports 5,* 432 (May 2, 1947); *in German.* (Addition to Patent application I 54 896).

For prior application see PB 28 146. Copolymers of vinylalkylketones with other polymerizable compounds can be used instead of the vinylalkylketone polymers (e. g., vinylmethylketone-styrene copolymer).

TTD: 7-48

Waterproofing. Process for finishing vegetable or artificial fibers or vegetable or artificial cellulose material. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). Addition to patent application I 52 302. PB L 28 180, Apr. 1937, 3 pp. *Bibl. Sci. Ind. Reports 5,* 434 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

According to the prior application, the materials are rendered water repellent with isocyanates or isothiocyanates or their addition compounds with hydrogen halide. According to the new invention, the materials are also subject to the action of synthetic aldehyde resins, their precondensation products, aldehydes, or substances which give off aldehydes. TTD: 7-48

Waterproofing. Process for preparing finished fibrous materials. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 240, June, 1937. 10 pp. *Bibl. Sci. Ind. Reports 5,* 439 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The fibrous materials are treated with products prepared as follows: (1) alkylene oxide groups or vinyl groups are produced in organic compounds containing hydrophobic radicals, (2) organic radicals containing the above named groups are introduced into organic compounds with hydrophobic groups. After treatment, the fibrous materials are subjected to ripening at an elevated

temperature. The results of this procedure are manifest in the high water repellent properties of the fibrous materials. TTD: 7-48

Waterproofing. Process for the waterproofing of all kinds of textiles. I. G. Farbenindustrie A. G. (Patent application I 54 901, T. H. K. report). PB L 28 147, Apr. 1936. 5 pp. *Bibl. Sci. Ind. Reports 5,* 431 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Earlier patent applications are referred to. The combination of (1) copolymers of unsaturated carboxylic acids or their derivatives with (2) hydrocarbons or hydrocarbon compounds is used. The copolymers are characterized by the fact that at least one of them contains an aliphatic group with at least 10 C atoms in the chain. The hydrocarbon component likewise contains at least 10 C atoms in a molecule and may or may not be substituted with chlorine. If necessary, salts of alumina may be used simultaneously. TTD: 7-48

Waterproofing. Process for waterproofing textile fibers and other materials of animal or vegetable origin. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 170, Nov. 1936. 4 pp. *Bibl. Sci. Ind. Reports 5,* 433 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The material is treated with solutions of condensates prepared from amides of carboxylic acids of higher molecular weight, with at least 8 C atoms, by the action of polymeric formaldehyde and sulfurous acid in the presence of tertiary amines. The impregnated materials are subjected to ripening at temperatures above 70° C, if necessary, after a preliminary drying at temperatures below 70° C. TTD: 7-48

Waterproofing. Waterproofing of textiles. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 124, Jan. 1936. 2 pp. *Bibl. Sci. Ind. Reports 5,* 429 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

The copolymer of maleic anhydride and the vinyl ether of an aliphatic alcohol containing a minimum of 12 C atoms are used. The copolymer may be used as a free acid or as a functional derivative thereof (with the exception of anhydride). TTD: 7-48

Waterproofing. Waterproofing of textiles. I. G. Farbenindustrie A. G. (Patent application I 52 968, T. H. K. report). PB L 28 134, Feb. 1936. 3 pp. *Bibl. Sci. Ind. Reports 5,* 430 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.* (Addition to patent application I 52 968).

Copolymers of olefinic acids and esters which are formed

from alpha, betaethylen dicarboxylic acid (maleic acid) and aliphatic alcohols with at least 6 C atoms are used.
TTD: 7-48

Waterproofing. Waterproofing of textiles. I. G. Farbenindustrie A. G. (Patent application I 54 885, T. H. K. report). PB L 28 145, Apr. 1936. 3 pp. *Bibl. Sci. Ind. Reports 5,* 431 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Mixed polymers are used which contain an unsaturated carboxylic acid capable of polymerization, or a derivative thereof (except for unsaturated dicarboxylic acids and their derivatives). In addition, fatty groups with at least 12 C atoms have to be present in the copolymers.
TTD: 7-48

Waterproofing agent. Process for waterproofing textiles. I. G. Farbenindustrie A. G. (Patent application. T. H. K. report). PB L 28 178, Apr. 1947, 6 pp. *Bibl. Sci. Ind. Reports 5,* 434 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

For prior application see PB 28 101. The textiles are subjected to the action of synthetic aldehyde resins, aldehydes, or substances which give aldehydes. There are also some changes in the composition of the copolymers.
TTD: 7-48

Water repellent. Preparation of hydrophobic cellulose fibers. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 099, July, 1935. 2 pp. *Bibl. Sci. Ind. Reports 5,* 428 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Cellulose fibers are treated with high molecular weight, water-insoluble compounds which contain an alkylene oxide group. This surrenders the fibers water-repellent and they remain so, even after repeated washings.
TTD: 7-48

Water repellent. Silicone water repellent now applicable to all fibers. F. L. Dennett, Dow Corning Corp. *Textile World 98,* No. 5, 124, 222, 224, 226 (May, 1948).

A new type of Dow-Corning silicone is reported as applicable to all types of fibers. Silicone DC1107 is applied in a water and oil emulsion at a concentration designed to give 3 to 4% pickup of the silicone, based on the original fabric weight. Drying and kiering are accomplished by heating for 5 minutes at 350° F. Properly treated fabrics are odorless and have a soft, full hand. A high degree of water repellency, durable to dry-cleaning and laundering is claimed. No tendering effects have been noted.
LCL TTD: 7-48

Water repellent Waterproofing textiles. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 101, Aug. 1935. 3 pp. *Bibl. Sci. Ind. Reports 5,* 428 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.* (See also PB 28 102 in which this earlier application is referred to as I 52 968 IVc/8k).

The fabric is treated with solutions or emulsions of copolymers of maleic acid or maleic anhydride and vinyl esters of fatty acids containing a minimum of 12 C atoms.
TTD: 7-48

Water repellent. Waterproofing textiles. I. G. Farbenindustrie A. G. (Patent application, T. H. K. reports). PB L 28 102, Sept. 1935. 2 pp. *Bibl. Sci. Ind. Reports 5,* 428 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.* (See PB 28 101, also PB 28 124 in which this application is referred to as I.53 202 IVc/8k).

Copolymers of maleic anhydride and vinyl ethers of aliphatic alcohols with a minimum of 12 C atoms are used.
TTD: 7-48

Water repellents. Preparation of condensation products. I. G. Farbenindustrie A. G. (Patent application, T. H. K. report). PB L 28 110, Oct. 1935. 2 pp. *Bibl. Sci. Ind. Reports 5,* 428 (May 2, 1947). Price: $1.00 (Microfilm or Photostat); *in German.*

Amides of fatty acids containing a minimum of 8 carbon atoms in the carbon chain are combined with an aqueous solution of formaldehyde in the presence of alkali or alkali carbonate.
TTD: 7-48

Craze-resistant. Nelson R. Yorke (to St. Regis Paper Co.). USP 2 437 799, Mar. 16, 1948.

It is claimed that craze-resistance in laminated plastic products is obtained by coating the material with a thermoplastic resin containing finely comminuted, extremely thin glass fibers.
GNR TTD: 7-48

Fire resistant finish. Fire resistant coating composition. Martin Leatherman. USP 2 439 395, Apr. 13, 1948.

A composition that will make fabrics rot- and fire-resistant is claimed. This is essentially a mixture of a vinyl acetate-vinyl chloride copolymer, a methacrylate ester polymer, and zinc carbonate. It is desirable to add a plasticizer and softener (tricresyl phosphate), an opaque pigment and a fungicide, such as pentachlorphenol. Any suitable solvent mixture, compatable with these resins, can be used. This composition is said to impart flexibility, elasticity and generally a rubber-like appearance

to the textiles and can be applied to any type of textile material.
GNR TTD: 7-48

Fire-resistant finish. Fire resistant coating composition. Martin Leatherman. USP 2 439 396, Apr. 13, 1948.

A composition that will impart fire-resistant qualities to any textile material is claimed. It is essentially a vinyl chloride polymer or a vinyl chloride-vinyl acetate copolymer to which has been added zinc carbonate, a plasticizers, and an opaque pigment. Any suitable solvent can be employed.
GNR TTD: 7-48

Mildewproofing. Mildewproofing textiles. Alva L. Hank (to Rohm & Haas Co.). USP 2 430 017, Nov. 4, 1947.

A process is described for preserving cellulosic materials from attacks by microorganisms, especially under severe conditions of leaching. The preservative is a pentahalophenyl ester of the formula C_6X_5OCR, where x is chlorine or bromine and R is the residue of a carboxylic acid, including hydrogen (from formic acid). These materials are claimed to be resistant to heat, humidity and leaching and not to induce dermatitis in those who handle them. When tested with *Chaltonium globsum, Aspergillus niger,* and *Metarrhizium* sp., they showed no visible growth of mildew. Any fibrous or textile material may be treated with these materials.
EA TTD: 7-48

Moistureproof film. Moistureproof polyvinyl films. Milton R. Radcliffe (to The Firestone Tire & Rubber Co.). USP 2 435 464, Feb. 3, 1948.

This patent claims a self-supporting vinyl chloride-vinyladene chloride copolymer film with enhanced resistance to the passage of water vapor. This moisture resistance is accomplished by adding 1.5% dicetyl ether to the copolymer containing at least 60% vinyl chloride.
GNR TTD: 7-48

Non-slip rugs. Nonslip textile article. Russel R. Matthews. USP 2 434 709, Jan. 20, 1948.

A method of coating rugs with a water dispersion of rubber to prevent their slipping on smooth surfaces is described. The carpets are so constructed that the contact surface is ribbed, and these ribs are the only parts which are coated with the nonslip material. The method of coating involves passing the rug in a continuous sheet over a roll which is rotating in the rubber dispersion. Speed of roll and carpet are so adjusted as to give

a wiping action to the surface of the carpet. Air jets are provided to break thin films which tend to form between the ribs. The carpet is then passed through a steam-heated chamber to dry and cure the rubber on the surface of the carpet. It is claimed that by this method a heavier portion of high-friction material is applied to the contact surface of the rug than by prior methods, and the cost of the material applied may be reduced to one-quarter of present material costs. TTD: 7-48

Shrinkage reduced. Finishing textile materials composed of or containing animal fibers. John B. Speakman & Emma Whewell (to The Fuller's Earth Union, Ltd.). USP 2 438 328, Mar. 23, 1948.

Shrinkage of fabrics containing animal fibers is reduced by a process which employs an abrasive powder in the presence of a nonaqueous medium. Suitable powders are Fuller's Earth, carborundum, silica, kaolin, or mixtures of these materials. The abrasive action of the powder is believed to modify the scale formation of the fibers.
LCL TTD: 7-48

FLAMEFROOFING OF TEXTILE FABRICS. Robt. W. Little. ACS Monograph Series. No. 104. Reinhold Publishing Corp., 330 West 42nd St., New York 18, N. Y., 1947. xix + 410 pp.; price $6.75.

Reviewed in *Chem. & Eng. News 26,* 1801 (June 14, 1948). TTD: 7-48

TESTING AND ANALYSIS IX

Chemical analysis IX 2

Carboxymethylcellulose. Determination of sodium, potassium, aluminum, and zinc in derivatives of carboxymethylcellulose. E. P. Samsel, Spencer H. Bush, Roberts L. Warren, & A. F. Jordon. *Anal. Chemistry 20,* No. 2, 142-6 (Feb. 1948).

Procedures have been devised for the determination of specific metal ions in their respective carboxymethylcellulose salts. Sodium can be determined directly as the triple salt, sodium magnesium uranyl acetate. Aluminum can be determined gravimetrically by precipitation with 8-hydroxyquinoline, and colorimetrically by treatment with ammonium aurintricarboxylate (Aluminon) to form a red colored complex. Potassium is precipitated as the periodate, to which potassium iodide is added, and the iodine liberated is titrated. Zinc is determined by reaction with a standard solution of potassium ferrocyanide to form potassium zinc ferrocyanide. TTD: 7-48

Fabric finishes. Low-temperature flexibility of doped fabric finishes. Virginia C. Menikheim. PB A 53 885, Dec. 1946. 2 pp. *Bibl. Sci. Ind. Reports 5,* 405 (May 2, 1947). Price: $1.00 (Microfilm or Photostat).

An attempt was made to test the effect of weather exposure on the flexibility of doped fabric finishes. No conclusions could be reached because most of the panels were lost or damaged in a hurricane, and the remaining panels rendered unfit for evaluation. TTD: 7-48

Polymers. Purity and identity of high polymers. H. Mark. *Anal. Chemistry 20,* No. 2, 104-10 (Feb. 1948).

Methods and difficulties involved in analyzing and characterizing natural and synthetic polymers are described. There are 44 references. TTD: 7-48

Recording stress-relaxation. An instrument for measuring stress relaxation of high polymer materials. W. S. MacDonald & A. Ushakoff. *J. Colloid Sci. 3,* No. 2, 135-45 (May 1948).

This instrument consists of 2 parts. The first is a measuring jig used to apply a desired initial stress to a sample and to measure its relaxation on a continuous basis after the test starts. The second part of the system is a suitable recorder, such as a modified Foxboro Dynalog. The specimen is subjected to a predetermined initial stress, and the decay is recorded continuously as the ordinate against time as the abscissa. TTD: 7-48

Viscosity of cellulose. Cupric-ethylenediamine viscosity measurements of cellulose and determination of the degree of polymerization. Albert Kung & Zeno Kaufmann. *Chimia 2,* No. 4, 82-7 (Apr. 1948).

The Tappi and Hopler viscometers are described as well as the Tappi and cupric-ethylenediamine methods for determining the viscosity of cellulose. The polymerization degree is determined by the formula $P = \frac{[n]}{Km}$ where n is specific viscosity at infinite dilution and m is the average molecular weight. TTD: 7-48

ASTM STANDARDS. 1946 book of ASTM standards including tentatives (A triennial publication). Am. Soc. of Testing Materials, Philadelphia, 1947; 5 parts; price $44.00. Part III-A. Non-metallic materials (including textiles). 1290 pp.; price $8.00.

Reviewed in *Anal. Chemistry 19,* No. 9, 697 (Sept. 1947). TTD: 7-48

TEXTILE MILLS X

Aids in manufacture. Aids to spinning interest

Georgia mill men. *Textile World 98,* No. 6, 137, 236, 238, 240 (June, 1948).

Interest at the conference of textile operating executives of Georgia centered on the air removal of ends, automatic knockoffs, and clearer cleaners.
LCL TTD: 7-48

Machine drives. Slasher and loom drives featured at A.I.E.E. meeting. Howard S. Knowlton. *Textile World 98,* No. 6, 129, 232, 234, 236 (June, 1948).

At a recent meeting of the Am. Inst. of Electrical Engineers, the characteristics of various types of machine drives were discussed. Multi-motor drives for slashers which control tension and produce better beaming, were considered. Loom operation imposes special requirements in motors especially motors for individual drive. These requirements include the ability to provide instant starting, acceleration, and stopping, together with steady and unfailing power to carry the loom over peak loads.
LCL TTD: 7-48

Machinery developments. New York machinery show and forum attract mill men. *Textile World 98,* No. 6, 107, 108, 109, 200, 202, 204, 206, 209, 210 (June, 1948).

Brief notes on the more interesting developments at the recent International Exposition, May 3-7, in New York, are presented. Knitting and finishing equipment was featured. The manufacturing operations from preparation and spinning through finishing and water conditioning were included in a forum discussion.
LCL TTD: 7-48

Machinery developments. Swiss and French display textile developments. C. W. Bendigo. *Textile World 98,* No. 6, 103-6 (June, 1948).

Recent Swiss and French industrial fairs exhibited a wide variety of textile machinery developments. A large number of devices for application to textile machines included an automatic pick finding mechanism and Pneumafil equipment. A new French loom, Ancet circular loom, is credited with producing 15 sq. yds. of dress fabric per hour. Equipment produced by Zellweger, Ltd., Rieters, Schweiter, Ltd., and other companies is described.
LCL TTD: 7-48

Mill construction. A quality plant erected for quality fabrics. Wm. A. Newell. *Textile World 98,* No. 5. 109-12, 234-5 (May, 1948).

The new weaving mill of F. Ducharne Silk Company in Glenrock, N. J., combines beauty with the most modern engineering. The exterior face of the building

is composed of aluminum panels. The maximum usable floor space has been provided by long-span roof trusses. Air-conditioning equipment is located in the space between roof trusses and is divided into units, each unit serving certain parts of the plant. Fluorescent lighting enhances the interior color scheme.
LCL TTD: 7-48

Buildings, machinery, power X 1

Types of oil. Performance standards should govern oil purchases. Victor E. Hillman, Director of Research, Crompton & Knowles Loom Works. *Textile World 98,* No. 6, 125, 180, 182, 184, 186, 188, 191, 192 (June, 1948).

Lubricants for textile machinery should be selected upon performance characteristics with the help of oil company engineers. Whenever a special lubricant is specified for use on a particular bearing, the lubricant specified should be used since ordinary lubricants can seldom be substituted advantageously.
LCL TTD: 7-48

Dehumidifier. Apparatus for dehumidifying air. Walter H. Freygang (to Kidde Mfg. Co., Inc.). USP 2 438 120, Mar. 23, 1948.

A durable, mobile, dehumidifying apparatus is designed to maintain a humidity which is comfortable to the average person during the warm seasonal periods of high humidity. TTD: 7-48

Light-beam indicator. Method and apparatus for aligning machinery. Ralph W. Hunter. USP 2 436 892, Mar. 2, 1948.

Optical apparatus, using a beam of light as an indicator, affords an accurate means by which to align shafting, machine parts, or to establish plant surfaces in a definite relation to a distant predetermined point.
TTD: 7-48

Reversible drive. Reversible motor drive. Douglas H. Graham (to Gen. Electric Co.). USP 2 435 440, Feb. 3, 1948.

A simplified reversible motor drive is obtained from a motor having a split 2-part shunt field-exciting winding for driving the motor in opposite directions.
JHB TTD: 7-48

BASIC SCIENCES XI

Cellulose and heavy water. Rate of exchange of cellulose with heavy water. V. J. Frilette, J. Hanle, & H. Mark. *J. Am. Chem. Soc. 70,* No. 3, 1107-13 (Mar. 1948).

It has been found that cellulose reacts very rapidly with heavy water, provided sufficient agitation is used;

the rapid reaction is followed by a much slower reaction. In none of the cases studied were all of the hydroxyls exchanged. The techniques used and the calculations involved are outlined. Materials studied were cotton linters, wood pulp, and viscose rayon fibers.
TTD: 7-48

Cellulose and its derivatives. A summary of recent developments in cellulose and cellulose derivatives. *J. Chem. Education 25,* No. 2, 94-6, 117 (Feb. 1948).

A review. TTD: 7-48

Cellulose and starch. Molecular structure of cellulose and starch. Eugene Pascu. *J. Polymer Sci. 2,* No. 6, 565-82 (Dec. 1947). (See TTD: *3,* 525 (Nov. 1946).)

It is concluded from published information that cellulose is a chain molecule containing at least 99% of B-1, 4 glucopyranosidic bonds. A portion of a structural formula, based on a theory of periodicity, is presented and evidence cited in its favor. It is concluded that native cellulose has an indefinitely high molecular weight, but that it is degraded by the procedures used by most investigators. The elimination of only a few hemiacetal bonds renders a fabric made of native cellulose completely useless. It is concluded that this new concept of cellulose and starch structure opens up new possibilities in both fundamental and industrial research.
TTD: 7-48

Cellulose derivatives. Aryl carbamates of cellulose acetate. W. M. Hearon & Jules L. Lebsitz. *J. Am. Chem. Soc. 70,* No. 1, 296-7 (Jan. 1948).

The condensation of aryl isocyanates with partially hydrolyzed cellulose was studied to determine their relative rates of reaction, the solubilities of the products, and the ease of alkaline hydrolysis of the different carbamate groups. TTD: 7-48

Cellulose derivatives. Silicon derivatives of cellulose. Trimethylsilylcellulose. H. A. Schuyten, J. W. Weaver, J. David Reid & J. F. Jurgens. *J. Am. Chem. Soc. 70,* No. 5, 1919-20 (May, 1948).

Trimethoxychlorosilane and other chloro- and acetoxysilanes were reacted with cellulose to yield products which, by gain in weight and silicon content, show a group substitution as high as 2.75 groups per glucose unit. Cotton linters and cellulose acetate were the sources of the cellulose. TTD: 7-48

Cellulose gels. Deformation mechanism of cellulose gels. III. Changes in orientation upon drying. P. H. Hermans, J. J. Hermans, D. Vermaas & A. Weidinger, Laboratory for Cellulose Research,

Utrecht, Netherlands. *J. Polymer Sci. 2,* No. 6, 632-36 (Dec. 1947).

Quantitative x-ray studies before and after drying were made to determine the orientation of isotropic model filaments of viscose stretched to various extents in the xanthate state, in the form of freshly decomposed, still highly swollen cellulose filaments, and in the form of previously dried and then reswollen filaments. There was little or no change in orientation after drying, and consequently the movement of the crystallites cannot be explained by Kratsky's theory of affined transformation. (See TTD: *4,* 33). TTD: 7-48

Cellulose gels. Deformation mechanism of cellulose gels. IV. General relationship between orientation of the crystalline and that of the amorphous portion. P. H. Hermans, J. J. Hermans, D. Vermaas & A. Weidinger. *J. Polymer Sci. 3,* No. 1, 1-9 (Feb. 1948).

Ten series of model filaments with increasing degrees of orientation and swelling ranging between 16 and 1.2, were prepared from 3 viscoses containing 4, 6, and 10.5% cellulose. Their birefringences were measured to determine the over-all orientation of the fiber substance and x-rays were taken to determine the orientation of the crystalline portion. A general relationship exists between the 2 orientation values, so that, once the birefringence of a filament is known, the orientation factor of its crystallites can be calculated without taking an x-ray photograph. From the data collected, it is even more evident that the orientation of the crystallites cannot be explained by the theory of affined transformation. (See previous abstract). TTD: 7-48

Chain molecules. Rigidity of chain molecules and its determination from viscosity and flow birefringence in dilute solutions. Werner & Hans Kuhn. *J. Colloid Sci. 3,* No. 1, 11-32 (Feb. 1948).

The behavior of the flow birefringence and the viscosity of solutions of such chain molecules as cellulose nitrate, methyl cellulose and polystyrene were observed. Solutions indicating small shape-resistance on the basis of their birefringence showed an analogous viscosity behavior. In a series of homologous polymers, the lower members had large shape-resistance values, whereas the higher members had small ones. TTD: 7-48

Copper number. Glucides. II. Copper index of the cellulose in paper rags. A. Leman & Georges Ulrici. *Bull. Soc. chim. 14,* Nos. 11-12, 1057-62 (Nov.-Dec. 1947).

The copper index of cellulose was measured according to the methods of Hagglund, Schwalbe and Koehler-Braidy. A modification of Hagglund's method was devised which is both rapid and accurate, and in which the

fibers are not attacked. The copper index of paper rags was found to be 0.30, and that of bleached cotton linters 0.037. TTD: 7-48

Extrusion of fibers. The extrusion of liquids into fibers as a viscosity anomaly. Hs. Nitochmann & J. Schrade. *Helv. Chim. Acta. 31,* No. 2, 297-319 (1948).

It was found that only those liquids were ductile in which the viscosity increased with increased tensile stress in the sectional units (of the molecule). TTD: 7-48

Forbidden angle. Steric hindrance in macromolecular solution. J. Duclaux. *J. Polymer Sci. 2,* No. 6, 626-31 (Dec. 1947).

In a solution of rod-like macromolecules, each molecule prevents its neighbor from occupying certain positions, the whole of which form the forbidden angle. Calculations show that, in the case of rigid, filiform molecules, this angle is large, even at very low concentrations. Isotropy is not possible at moderate concentrations. Consideration of the forbidden angle is necessary in the study of viscosity, osmotic pressure, flow birefringence, sedimentation and molecular light scattering. In the solid state, the substance can be put under great tension, and the return to the normal state is very slow. This tension acounts for the abnormal solution of disordered high polymers. TTD: 7-48

Hydrocelluloses. Crystallinity of hydrocelluloses. F. C. Brenner, V. J. Frilette, & H. Mark. *J. Am. Chem. Soc. 70,* No. 2, 877-8 (Feb. 1948).

Hydrolytic methods of evaluating the intromolecular structure of cellulose cause an additional crystallization in the initial stages of hydrolysis The increase in crystallinity is calculated from the relationship:

$$\frac{\text{Sp V of untreated sample - Sp V of treated sample}}{\text{Difference in Sp V of amorphous and crystalline cellulose}}$$

wherein Sp V is specific volume. TTD: 7-48

Macromolecules. The size and shape of polymer molecules. C. E. H. Bawn. *Research 1,* No. 8, 343-52 (May, 1948).

A review with 16 references. TTD: 7-48

Structure of cellulose. Atomic configuration of cellulose. A. J. A. Van Der Wyk & K. H. Meyer. *J. Polymer Sci. 2,* No. 6, 583-92 (Dec. 1947).

X-ray and sterochemical studies of the spatial arrangement of the atoms in cellulose, together with the theories advanced by various investigators are discussed. The structure proposed by Meyer and Misch is considered the best approximation to date. 21 references. TTD: 7-48

Viscometer. Capillary-tube viscometer. R. H. Wagner & John Russell. *Anal. Chemistry 20,* No. 2, 151-5 (Feb. 1948).

A capillary-tube viscometer suited for routine measurements of dilute high polymer solutions is described. The viscometer minimizes the time required for measurement, including the filling, cleaning, and drying operations, and is compact. TTD: 7-48

Viscometric measurements. Pseudoplastic flow properties of lyophilic colloids. Earl K. Fischer & Chas. H. Lindsley Inst. of Textile Technology. *J. Colloid Sci. 3,* No. 2, 111-28 (May, 1948).

The flow properties of 2 pseudoplastic materials, starch and methyl cellulose, were analyzed by means of a rotational (modified Stormer) viscometer. Methods of computation are described. TTD: 7-48

Water in cellulose. On the distribution of water in cellulose and other materials. Robt. Simha & John W. Brown. *J. Am. Chem. Soc. 70,* No. 4, 1663-64 (Apr. 1948).

From relative water vapor pressure measurements and data obtained by previous investigators, it is suggested that the combination of water with textile materials (such as silk, wool, and cellulose) in the limit of low vapor pressures can be described in terms of adsorption theory. In limit of high vapor pressures, the system can be analyzed in terms of a theory of polymer-liquid mixtures. TTD: 7-48

COLLOID SCIENCE, A SYMPOSIUM. E. K. Rideal et al. Chemical Publishing Co., Brooklyn, 1947; 208 pp.; price $6.00.

Reviewed in *J. Chem. Education 25,* No. 2, 119 (Feb. 1948). TTD: 7-48

COLLOIDS—THEIR PROPERTIES AND APPLICATIONS. A. G. Ward. Interscience Publishers, Inc., New York, 1946; 133 pp.; price $1.75.

Reviewed in *J. Colloid Sci. 2,* No. 6, 599 (Dec. 1947). TTD: 7-48

MAKROMOLEKULARE CHEMIE UND BIOLOGIE. (MACROMOLECULAR CHEMISTRY AND BIOLOGY) Herman Staudinger. Wepf & Co., Basel, 1947; 160 pp.; price $3.06.

Reviewed in *J. Chem. Education 25,* No. 5, 299 (May, 1948). TTD: 7-48

Research. The organization of the research laboratory. Eric A. Walker. *J. Eng. Education 38,* No. 7, 432-9 (Mar. 1948).

The investment in a research scientist might be compared to the investment in a machine worth $100,000. The scientist, like the machine, must be properly installed and properly maintained to obtain full value for his investment. Adequate laboratory, shop, and office facilities must be available. Certain records, considered necessary from a business point of view, are frequently irritating to a scientist and cost the company more than they are worth. Adequate dissemination of information and encouragement of curiosity are vital factors in the operation of a successful research laboratory.
LCL TTD: 7-48

Seminar. P. T. I. Seminar called postgraduate course. C. W. Bendigo, Textile World. *Textile World 98,* No. 6, 123c, 123d, 216, 227 (June, 1948).

The third annual Natl Textile Seminar sponsored by the Philadelphia Textile Institute covered a wide variety of subjects. Dr. Glenn Gardiner of Forstmann Woolen Co. and Mr. Emil Rieve of the Textile Workers Union of America discussed the union-management problem in the textile industry. F. S. Richardson of Waldrich Co. discussed advances in finishing processes, with emphasis on the Proctor-Mathieson bleaching range, the Williams unit, and the Rodney Hunt equipment for the wet processing of piece goods. A general discussion was held on the subjects of textile research and textile processing machinery developments.
LCL TTD: 7-48

Textile research. Integration of sciences in textile research. S. Jack Davis, Callaway Mills. *Am. Dyestuff Reptr. 36,* No. 18, 510-11 (Sept. 8, 1947).

A discussion is made of the contributions which may be made to textile research by the various sciences. The necessity for enthusiastic cooperation by scientists in solving the textile problems related to fibers, yarns, and fabrics is emphasized.
WPU, jr. TTD: 7-48

Bag sealing. Heat-sealing mechanism. Hans O. Irmscher (to Natl. Urn Bag Co., Inc.). USP 2 434 657, Jan. 20, 1948.

A mechanical device is described which is used to heat-seal the edges of filled bags, tea-balls or similar infusion packages.
WPU, jr. TTD: 7-48

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